SK-51F P SK-61F P SK-71F P

MW/SW1/SW2/FM STEREO
RADIO CASSETTE RECORDER

SERVICE MANUAL

Subject: The differences with the model SK-51, 61, 71/KU are mentioned in this service manual. So please make use of this manual together with the one for SK-51, 61, 71/KU.

SPECIFICATIONS

Max. music power	30W (total music power)
Speaker	16 cm (6-1/4 in.) Woofer, 4.2 cm (1-5/8 in.) Tweeter, (2 way system)
Wow and flutter	0.08% (WRMS) With anti-rolling system
Frequency response	50 ~ 12,000 Hz (SK-51F) 50 ~ 13,000 Hz (Chrome) (SK-61F, 71F)
Input	AUX L/R, EXT MIC L/R (with terminal for remote control use), MIX MIC (with terminal for remote control use), EXT FM ANT
Output	LINE OUT L/R, EXT SP L/R, headphone
Subfunction	
(SK-51F)	One side repeat, song repeat, programmable repeat, tape counter memory, song finder, editor, one touch recording, loudness switch
(SK-61F)	Sleep/timer/clock/counter, one side repeat, song repeat, song finder, editor, one touch recording, loudness switch, tape selector (Normal/CrO_2)
(SK-71F)	One side repeat, song repeat, programmable repeat, tape counter memory, song finder, editor, one touch recording, Dolby noise reduction, manual recording level control, tape selector (Normal/CrO_2), loudness switch
Indicator	
(SK-51F)	Play (Green LED), FF (Red LED), REW (Red LED), REC (Red LED), song finder (Red LED), auto repeat (Green LED), memory (Red LED), FM stereo (Red LED), tuning (Green LED), battery check (Red LED)
(SK-61F)	Clock (LCD), calendor (LCD), timer (LCD), sleep timer (LCD), tape counter (LCD), REC (Red LED), song finder (Red LED), auto repeat (Green LED), FM stereo (Red LED), tuning (Green LED), battery check (Red LED)
(SK-71F)	REC (Red LED × 2), auto repeat (Green LED), memory (Red LED), song finder (Red LED), manual REC (Red LED), Dolby NR (Green LED), FM stereo (Red LED), battery check (Red LED), level meter (2 series 11 point Red and Green LED), access tuning (Red LED, Green LED × 2)
Frequency range	FM: 88 ~ 108 MHz MW: 525 ~ 1,605 kHz SW1: 2 ~ 6 MHz SW2: 6 ~ 18 MHz
Power source	120/220V AC 50/60 Hz, 13.5V DC (Nine 1.5V "D" batteries), EXT 12V DC 1.5V DC (One "AA" battery, for timer) (SK-61F)
Power consumption	16W (SK-51F, 61F) 19W (SK-71F)
Dimensions	
(W × H × D)	530 × 280 × 135 mm (20-7/8 × 11 × 5-3/8 in.)
Weight	6.5 kg (14.3 lbs) without batteries (SK-51F, 61F) 6.8 kg (15 lbs) without batteries (SK-71F)

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

* The word "Dolby" and DD are trademarks of Dolby Laboratories.

PIONEER®

ADJUSTMENT

MW IF ADJUSTMENT

● Connection Diagram

Switch position

Band switch .... MW

Generator Scope

Sweep center frequency .... 455 kHz

Input gain .... 0.3 Vp-p/cm

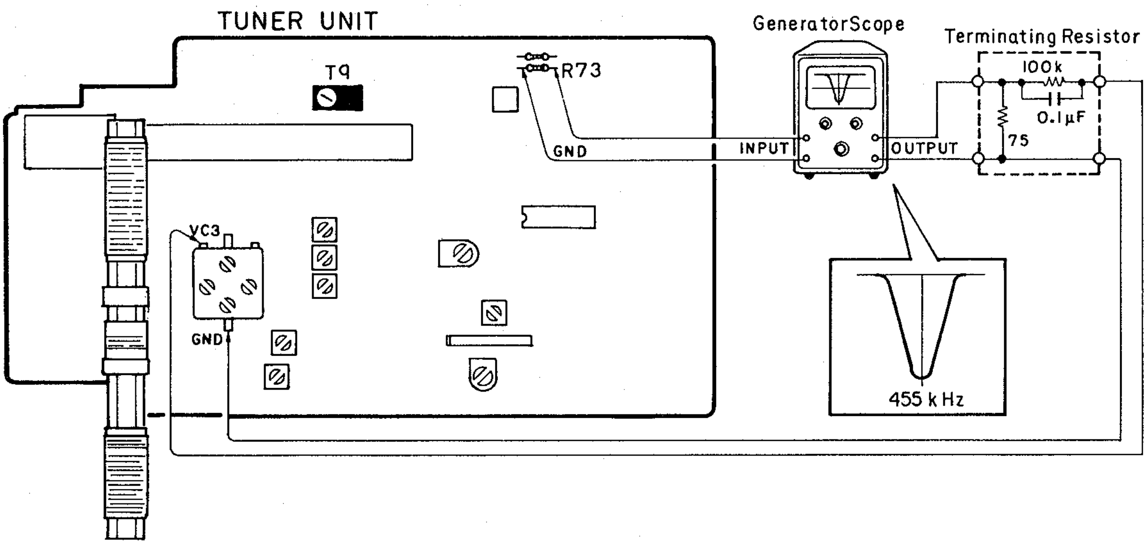

TUNER UNIT
T9
R73
GND
GeneratorScope
INPUT
OUTPUT
Terminating Resistor
100k
0.1µF
75
VC3
GND
455 kHz

Fig. 1

● To Adjust

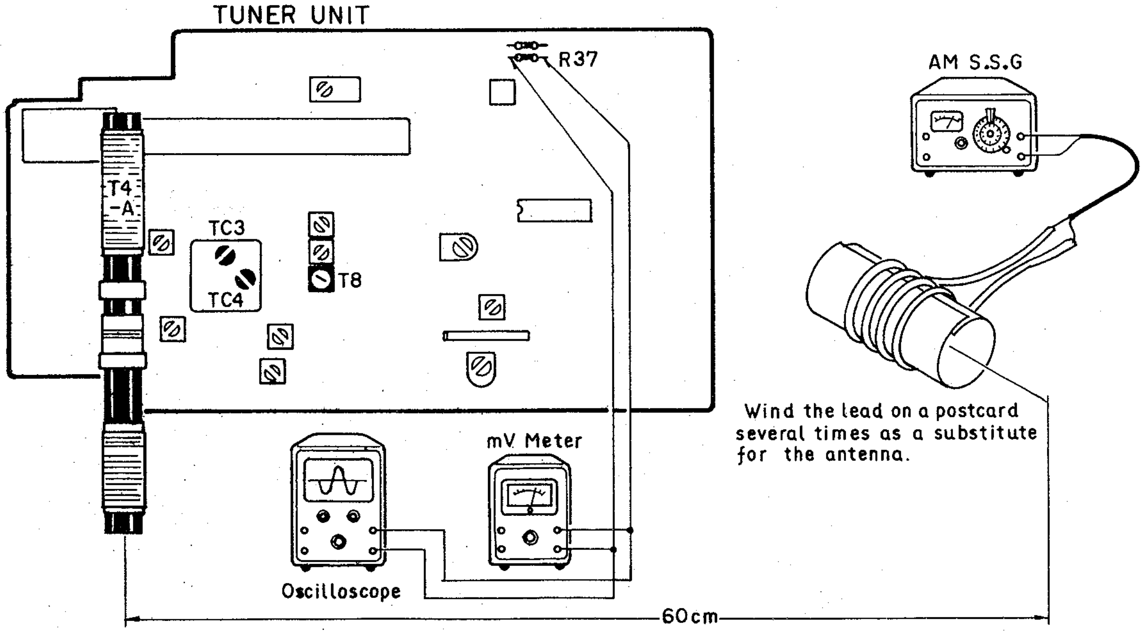
1. Set the input of the Generator Scope to the range within which the U curve can be verified and move the T9 until the U curve is adjusted to its maximum amplitude and optimum symmetry.

MW TRACKING ADJUSTMENT

● Connection Diagram

Switch position

Band switch .... MW


TUNER UNIT
R37
T4-A
TC3
TC4
T8
AM S.S.G
mV Meter
Oscilloscope
60cm

Wind the lead on a postcard several times as a substitute for the antenna.

Fig. 2

● To Adjust

Frequency of SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 510 kHz (400 Hz, 30% modulation) output 40 ~ 60 dB/m.	Maximum (turn the tuning knob counterclockwise.)	T8	510 kHz can be received.
2. 1,650 kHz (400 Hz, 30% modulation) output 40 ~ 60 dB/m.	Minimum (turn the tuning knob clockwise.)	TC4	1,650 kHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 510 ~ 1,650 kHz are received.			
4. 600 kHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 600 kHz.	T4-A (Coil of bar antenna)	Maximum output.
5. 1,400 kHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 1,400 kHz.	TC3	Maximum output.
6. Repeat (4) and (5) alternately and confirm that they are as specified.			

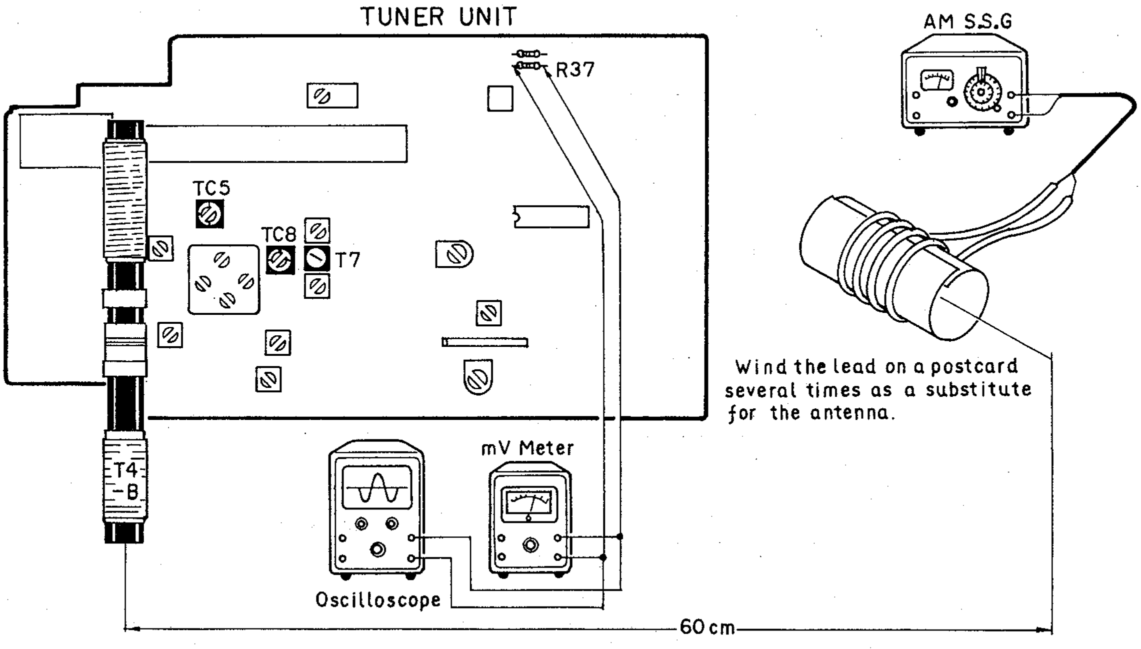
Note: After adjusting T4-A (Coil of bar antenna), melt electro wax with soldering iron and fix it in position.

SW1 TRACKING ADJUSTMENT

● Connection Diagram

Switch position

Band switch SW1



Wind the lead on a postcard several times as a substitute for the antenna.

Fig. 3

● To Adjust

Frequency of SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 1.9 MHz (400 Hz, 30% modulation) output 40 ~ 60 dB/m.	Maximum (turn the tuning knob counterclockwise.)	T7	1.9 MHz can be received.
2. 6.5 MHz (400 Hz, 30% modulation) output 40 ~ 60 dB/m.	Minimum (turn the tuning knob clockwise.)	TC8	6.5 MHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 1.9 ~ 6.5 MHz are received.			
4. 2.5 MHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 2.5 MHz.	T4-B (SW coil of bar antenna)	Maximum output.
5. 5.5 MHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 5.5 MHz	TC5	Maximum output.
6. Repeat (4) and (5) alternately and confirm that they are as specified.			

Note: After adjusting T4-B (SW coil of bar antenna), melt electro wax with soldering iron and fix it in position.

SW2 TRACKING ADJUSTMENT

● Connection Diagram

Switch position

Band switch SW2

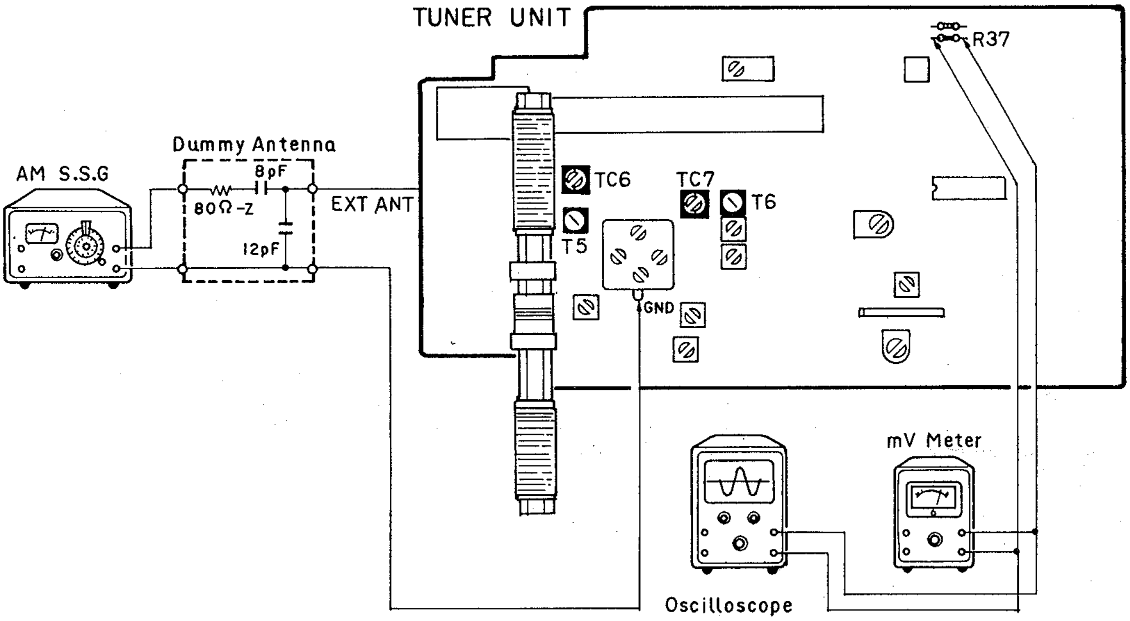

TUNER UNIT
R37
Dummy Antenna
AM S.S.G
8pF
80Ω-Z
12pF
EXT ANT
TC6
TC7
T6
T5
GND
mV Meter
Oscilloscope

Fig. 4

- **To Adjust**

Frequency of SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 5.5 MHz (400 Hz, 30% modulation) output 40 ~ 60 dB/m.	Maximum (turn the tuning knob counterclockwise.)	T6	5.5 MHz can be received.
2. 18.5 MHz (400 Hz, 30% modulation) output 40 ~ 60 dB/m.	Minimum (turn the tuning knob clockwise.)	TC7	18.5 MHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 5.5 ~ 18.5 MHz are received.			
4. 7 MHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 7 MHz.	T5	Maximum output.
5. 17 MHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 17 MHz.	TC6	Maximum output.
6. Repeat (4) and (5) alternately and confirm that they are as specified.			

FM IF ADJUSTMENT

- **Connection Diagram**

Switch position

Band switch .... FM AUTO

Generator Scope

Sweep center frequency .... 10.7 MHz
Input gain .... 0.3 Vp-p/cm
Marker .... OFF or minimum

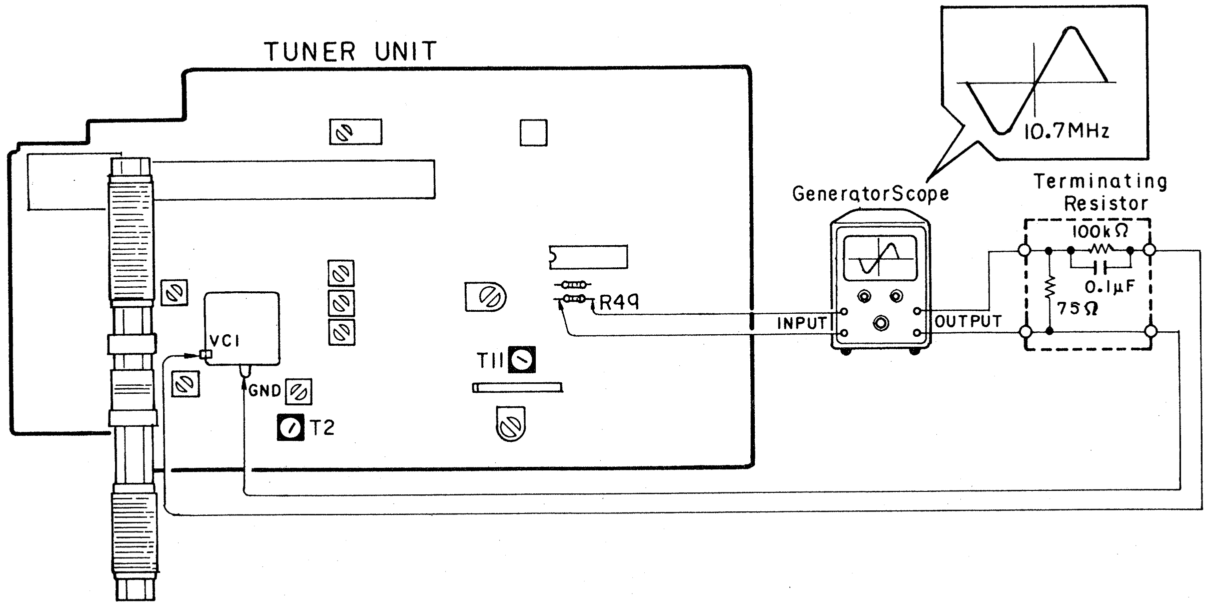


Fig. 5

- **To Adjust**

1. Apply an output of about 70 dB (µV) from the Generator Scope, adjust T2 and T11 and adjust so that the S curve becomes vertically symmetrical and optimum linearity is obtained.

FM TRACKING and ACCESS TUNING ADJUSTMENT

- **Connection Diagram**

Switch position

Band switch .... FM AUTO

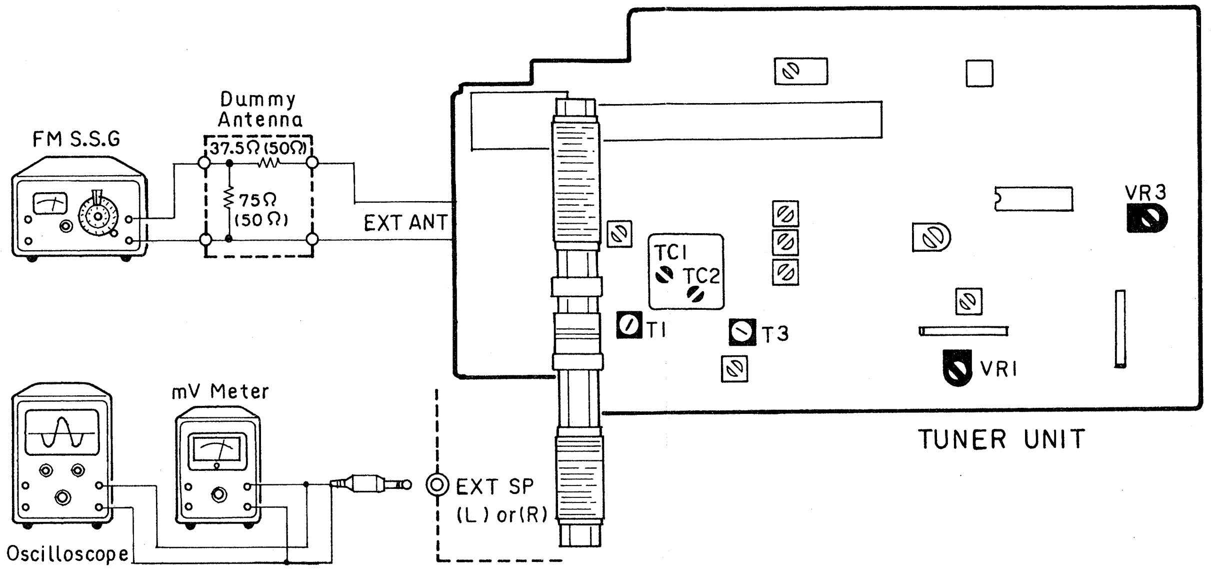


Fig. 6

- **To Adjust**

Frequency of FM SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 86.5 MHz (400 Hz, 75 kHz deviation) output 20 ~ 60 dB (µV).	Maximum (turn the tuning knob counterclockwise.)	T3	86.5 MHz can be received.
2. 109.5 MHz (400 Hz, 75 kHz deviation) output 20 ~ 60 dB (µV).	Minimum (turn the tuning knob clockwise.)	TC2	109.5 MHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 86.5 ~ 109.5 MHz are received.			
4. 90 MHz (400 Hz, 75 kHz deviation) output 20 ~ 30 dB (µV).	Tuned to 90 MHz.	T1	Maximum output.
5. 106 MHz (400 Hz, 75 kHz deviation) output 20 ~ 30 dB (µV).	Tuned to 106 MHz.	TC1	Maximum output.
6. Repeat (4) and (5) alternately and adjust until tracking error disappears.			

SK-51F, 61F

98 MHz (400 Hz, 75 kHz deviation) output 25 dB (µV).	Tune to 98 MHz.	VR1	Tuning LED must light.

SK-71F

98 MHz (400 Hz, 75 kHz deviation) output 25 dB (µV).	Perform detuning to right and left with 98 MHz as the center.	VR3	Check if the green LEDs on both ends light in a well-balanced manner.
98 MHz (400 Hz, 75 kHz deviation) output 25 dB (µV).	Tune to 98 MHz.	VR1	Red LED must light.

e

t..

t.

MHz
p/cm
imum

Fig. 5

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FM TRACKING and ACCESS TUNING ADJUSTMENT

● Connection Diagram

Switch position

Band switch .... FM AUTO

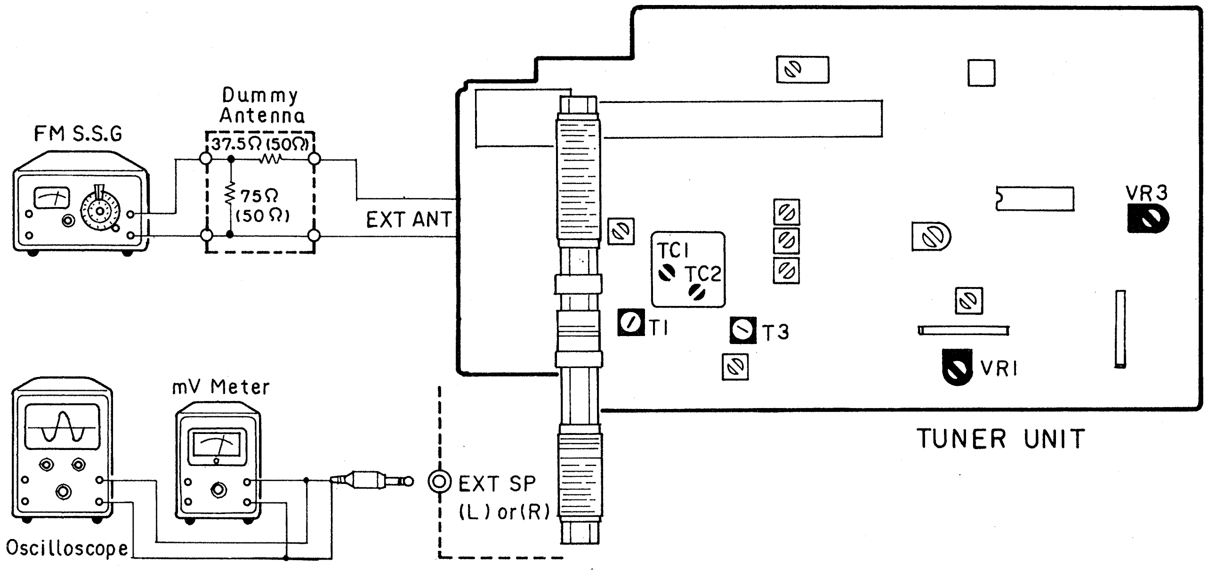

FM S.S.G
Dummy Antenna
37.5Ω (50Ω)
75Ω (50Ω)
EXT ANT
TC1
TC2
T1
T3
VR3
VR1
TUNER UNIT
mV Meter
Oscilloscope
EXT SP (L) or (R)

Fig. 6

● To Adjust

Frequency of FM SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 86.5 MHz (400 Hz, 75 kHz deviation) output 20 ~ 60 dB (μV).	Maximum (turn the tuning knob counterclockwise.)	T3	86.5 MHz can be received.
2. 109.5 MHz (400 Hz, 75 kHz deviation) output 20 ~ 60 dB (μV).	Minimum (turn the tuning knob clockwise.)	TC2	109.5 MHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 86.5 ~ 109.5 MHz are received.			
4. 90 MHz (400 Hz, 75 kHz deviation) output 20 ~ 30 dB (μV).	Tuned to 90 MHz.	T1	Maximum output.
5. 106 MHz (400 Hz, 75 kHz deviation) output 20 ~ 30 dB (μV).	Tuned to 106 MHz.	TC1	Maximum output.
6. Repeat (4) and (5) alternately and adjust until tracking error disappears.			

SK-51F, 61F

98 MHz (400 Hz, 75 kHz deviation) output 25 dB (μV).	Tune to 98 MHz.	VR1	Tuning LED must light.

SK-71F

98 MHz (400 Hz, 75 kHz deviation) output 25 dB (μV).	Perform detuning to right and left with 98 MHz as the center.	VR3	Check if the green LEDs on both ends light in a well-balanced manner.
98 MHz (400 Hz, 75 kHz deviation) output 25 dB (μV).	Tune to 98 MHz.	VR1	Red LED must light.

FM MPX ADJUSTMENT

● Connection Diagram

Switch position

Band switch .... FM AUTO

MPX modulator

Modulation frequency .... 1 kHz
Modulation 100%
Pilot .... 7.5 kHz
Main .... 67.5 kHz

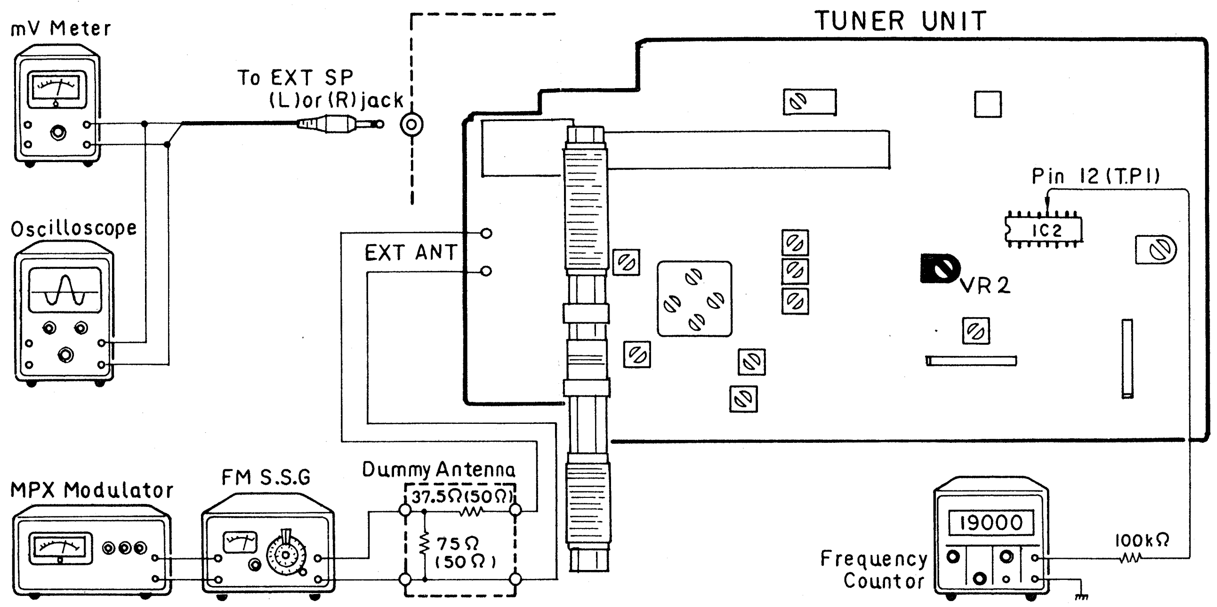
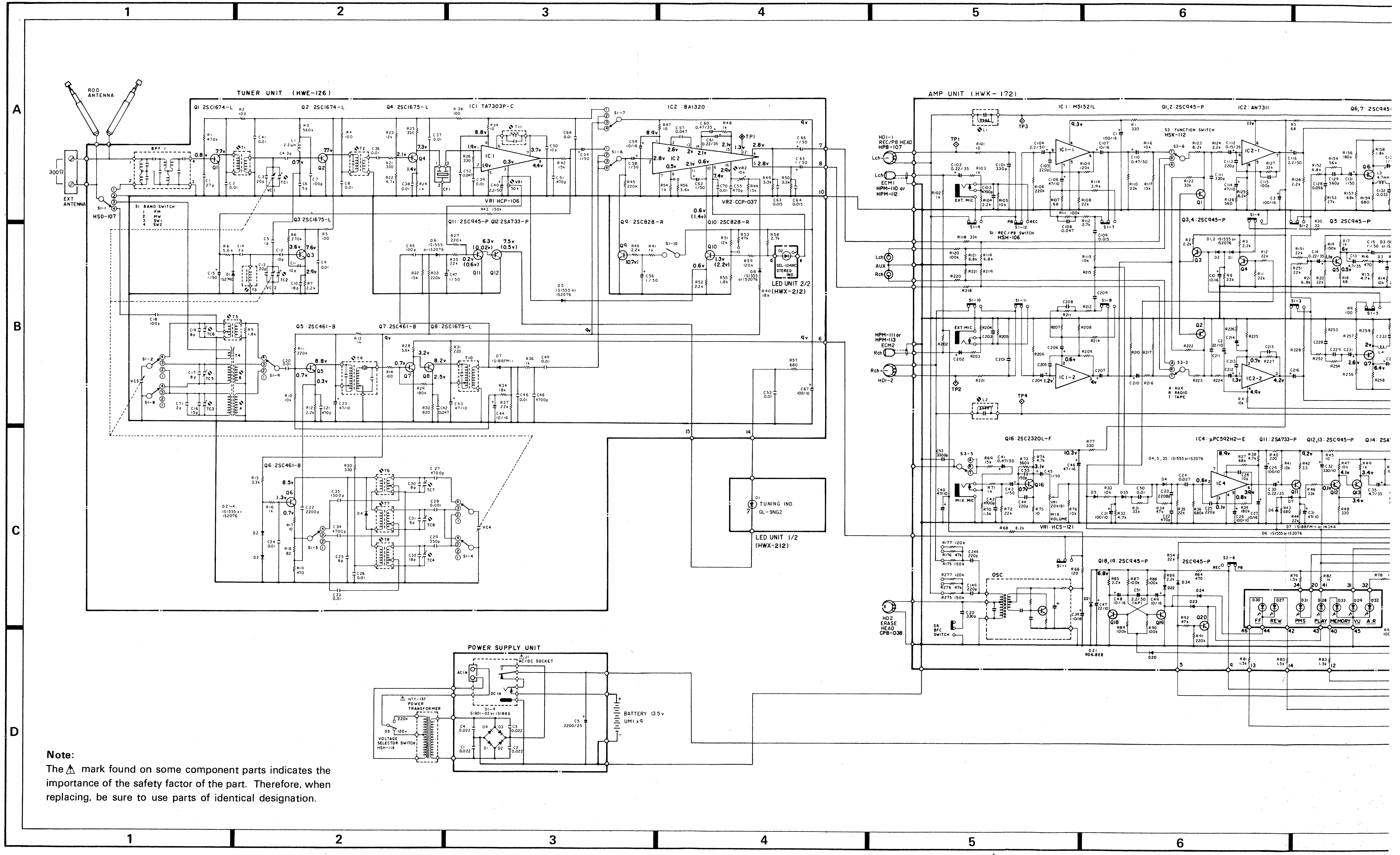

TUNER UNIT
mV Meter
To EXT SP (L) or (R) jack
Oscilloscope
EXT ANT
Pin 12 (T.P.I)
IC2
VR2
MPX Modulator
FM S.S.G
Dummy Antenna
37.5Ω (50Ω)
75Ω (50Ω)
19000
Frequency Countor
100kΩ

Fig. 7

● To Adjust

1. Apply an 98 MHz 10 dB signal from the FM SSG, and rotate the tuning knob to tune into 98 MHz.
2. Set the FM SSG output to 60 dB and set the modulation to OFF.
3. Adjust VR2 so that the frequency counter indicates 19 kHz ±20 Hz.

SCHEMATIC CIRCUIT DIAGRAM (SK-51F)


ROD ANTENNA
300Ω
EXT ANTENNA
S1-1 HSD-107
S1 BAND SWITCH
1 FM
2 MW
3 SW1
4 SW2
TUNER UNIT (HWE-126)
Q1 2SC1674-L
Q2 2SC1674-L
Q3 2SC1675-L
Q4 2SC1675-L
IC1 TA7303P-C
IC2 BA1320
BPF 1
VR1 HCP-106
VR2 CCP-037
Q9 2SC828-R
Q10 2SC828-R
Q11 2SC945-P Q12 2SA733-P
Q5 2SC461-B
Q6 2SC461-B
Q7 2SC461-B
Q8 2SC1675-L
D2~4 1S1555 or 1S2076
D5 1S1555 or 1S2076
D6 1S1555 or 1S2076
D7 1S188FM-1
D8 1S1555 or 1S2076
SEL-104RC STEREO IND.
LED UNIT 2/2 (HWX-212)
TUNING IND. GL-9NG2
LED UNIT 1/2 (HWX-212)
POWER SUPPLY UNIT
AC/DC SOCKET
HTT-137 POWER TRANSFORMER
VOLTAGE SELECTOR SWITCH HSH-114
S1B01-02 or 1S1886
BATTERY 13.5V UM1 x9
C5 2200/25
AMP UNIT (HWK-172)
IC1 M5152IL
Q1,2 2SC945-P
IC2 AN7311
Q6,7 2SC945
HD1-1 REC/PB HEAD HPB-107
ECM1 HPM-110 or HPM-112
EXT. MIC
S1 REC/PB SWITCH HSH-106
S3 FUNCTION SWITCH HSK-112
Q3,4 2SC945-P
Q5 2SC945-P
AUX
HPM-111 or HPM-113 ECM2
HD1-2
A: AUX
R: RADIO
T: TAPE
Q16 2SC2320L-F
IC4 μPC592H2-E
Q11 2SA733-P
Q12,13 2SC945-P
MIX. MIC
MIX. VOLUME
VR1 HCS-121
D4,5,35 1S1555 or 1S2076
D7 1S188FM-1 or 1N34A
D6 1S1555 or 1S2076
OSC
Q18,19 2SC945-P
2SC945-P
HD2 ERASE HEAD CPB-038
S6 BFC SWITCH
D21 RD6.8EB
FF
REW
PMS
PLAY
MEMORY
VU
A.R
1
2
3
4
5
6
A
B
C
D

Note:
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

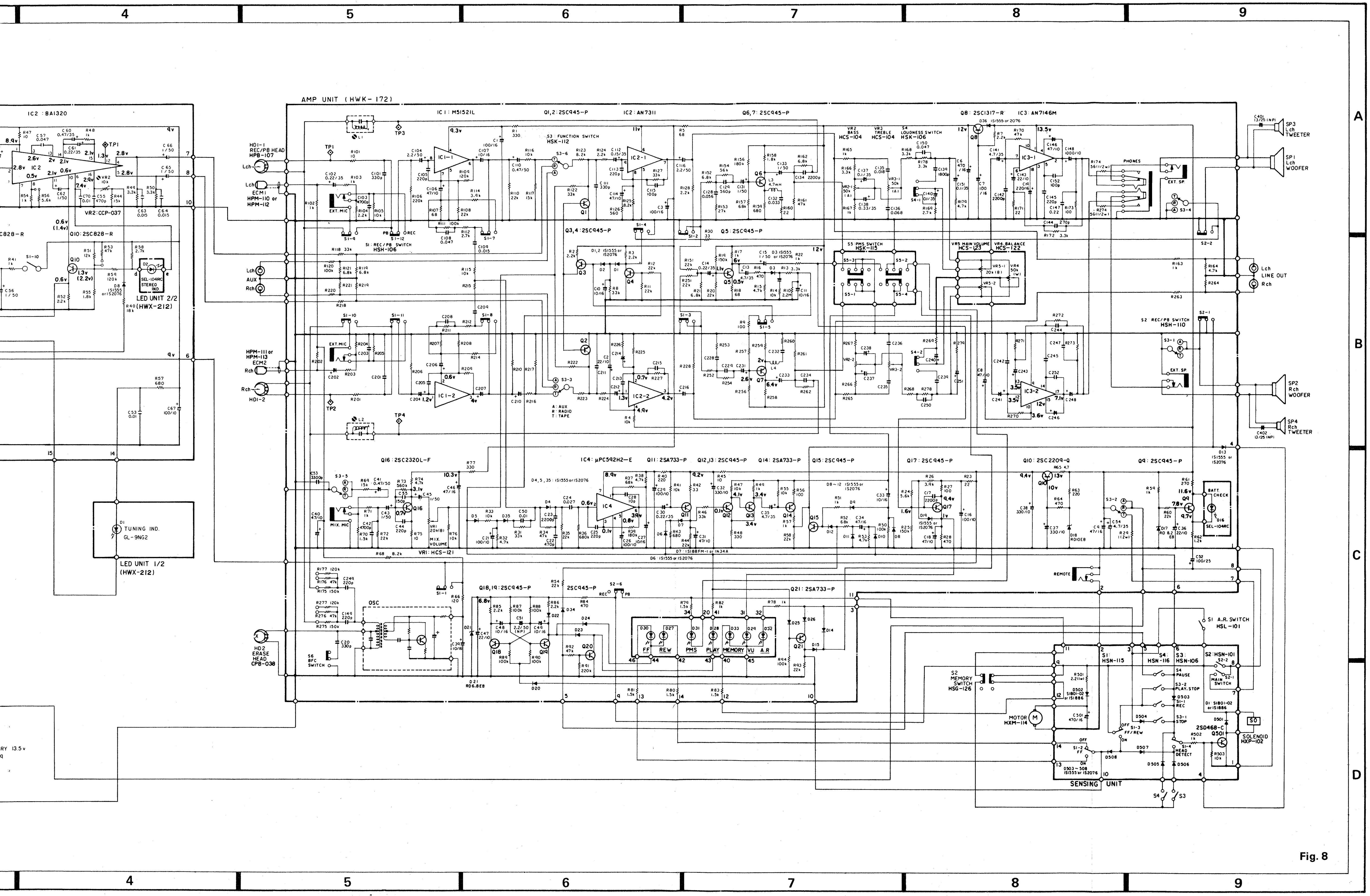
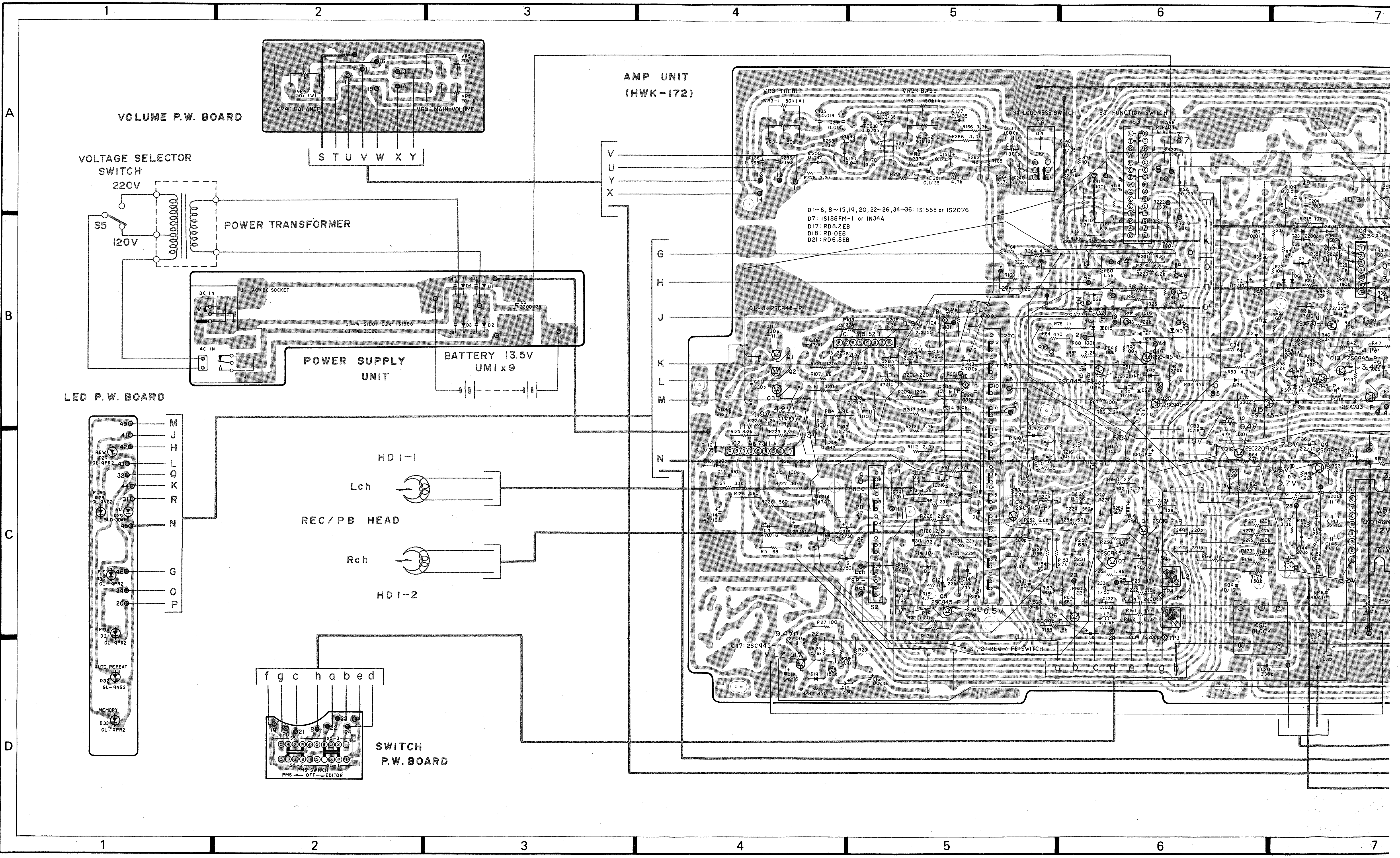

4
5
6
7
8
9
A
B
C
D
IC2 : BA1320
VR2 : CCP-037
Q10 : 2SC828-R
LED UNIT 2/2 (HWX-212)
SEL-104RC STEREO IND.
LED UNIT 1/2 (HWX-212)
D1 TUNING IND. GL-9NG2
AMP UNIT (HWK-172)
IC1 : M5152IL
Q1,2 : 2SC945-P
IC2 : AN7311
Q6,7 : 2SC945-P
Q8 : 2SC1317-R
IC3 : AN7146M
HD1-1 REC/PB HEAD HPB-107
ECM1 HPM-110 or HPM-112
EXT. MIC
AUX
HPM-111 or HPM-113 ECM2
HD1-2
S3 FUNCTION SWITCH HSK-112
S1 REC/PB SWITCH HSH-106
Q3,4 : 2SC945-P
Q5 : 2SC945-P
VR2 BASS HCS-104
VR3 TREBLE HCS-104
S4 LOUDNESS SWITCH HSK-106
S5 PMS SWITCH HSK-115
VR5 MAIN VOLUME HCS-123
VR4 BALANCE HCS-122
PHONES
EXT. SP
SP3 Lch TWEETER
SP1 Lch WOOFER
LINE OUT
S2 REC/PB SWITCH HSH-110
SP2 Rch WOOFER
SP4 Rch TWEETER
A : AUX
R : RADIO
T : TAPE
TP1
TP2
TP3
TP4
Q16 : 2SC2320L-F
IC4 : μPC592H2-E
Q11 : 2SA733-P
Q12,13 : 2SC945-P
Q14 : 2SA733-P
Q15 : 2SC945-P
Q17 : 2SC945-P
Q10 : 2SC2209-Q
Q9 : 2SC945-P
MIX. MIC
VR1 : HCS-121
MIX VOLUME
BATT. CHECK
SEL-104RC
REMOTE
OSC
HD2 ERASE HEAD CPB-038
S6 BFC SWITCH
Q18,19 : 2SC945-P
2SC945-P
Q21 : 2SA733-P
FF
REW
PMS
PLAY
MEMORY
VU
A.R
S1 A.R. SWITCH HSL-101
S2 MEMORY SWITCH HSG-126
MOTOR HXM-114
S1 HSN-115
S4 HSN-116
S3 HSN-106
S2 : HSN-101
MAIN SWITCH
PAUSE
PLAY, STOP
REC
STOP
FF/REW
HEAD DETECT
2SD468-C Q501
SOLENOID HXP-102
SENSING UNIT
D503~508 1S1555 or 1S2076
RY 13.5v

Fig. 8

CONNECTION DIAGRAM (SK-51F)



1
2
3
4
5
6
7
A
B
C
D
VOLUME P.W. BOARD
VR4: BALANCE
VR5: MAIN VOLUME
S T U V W X Y
VOLTAGE SELECTOR SWITCH
220V
120V
S5
POWER TRANSFORMER
DC IN
AC IN
J1 AC/DC SOCKET
D1~4: S1B01-02 or 1S1886
C1~4: 0.022
POWER SUPPLY UNIT
BATTERY 13.5V
UM1 x 9
LED P.W. BOARD
REW D27 GL-4PR2
PLAY D28 GL-9NG2
VU D29 SLD-30AR
F.F D30 GL-4PR2
PMS D31 GL-4PR2
AUTO REPEAT D32 GL-9NG2
MEMORY D33 GL-4PR2
M J H L Q K R N G O P
HD1-1
Lch
REC/PB HEAD
Rch
HD1-2
f g c h a b e d
SWITCH P.W. BOARD
PMS SWITCH
PMS — OFF — EDITOR
AMP UNIT (HWK-172)
V U Y X
G H J K L M N
VR3: TREBLE
VR2: BASS
S4: LOUDNESS SWITCH
S3: FUNCTION SWITCH
T: TAPE
R: RADIO
A: AUX
D1~6, 8~15, 19, 20, 22~26, 34~36: 1S1555 or 1S2076
D7: 1S188FM-1 or 1N34A
D17: RD8.2EB
D18: RD10EB
D21: RD6.8EB
Q1~3: 2SC945-P
IC1 M5152L
IC2 AN7311
IC4 HPC592H2
AN7146M
REC
PB
S2
S1, 2 REC/PB SWITCH
OSC BLOCK
a b c d e f g h

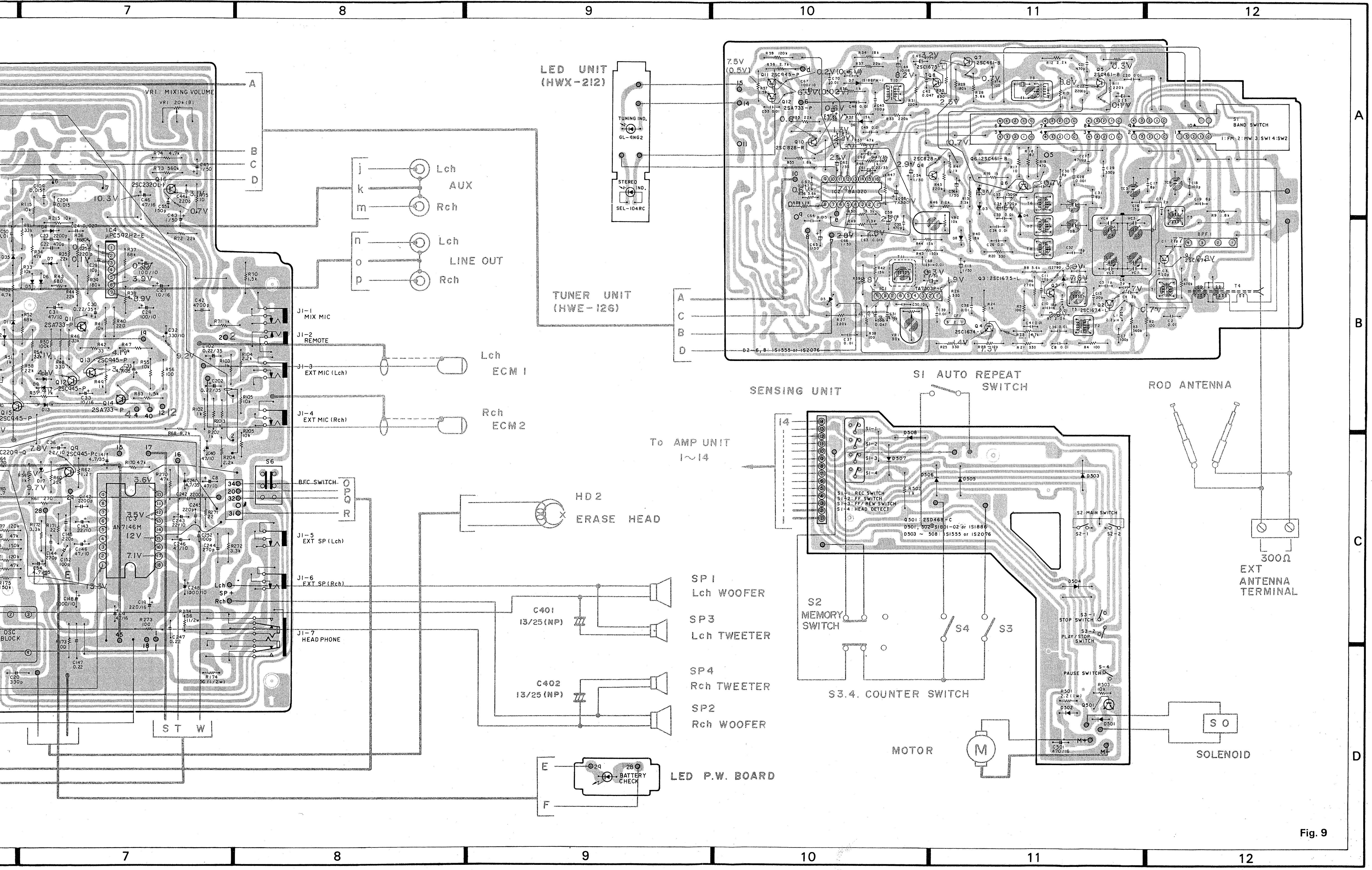
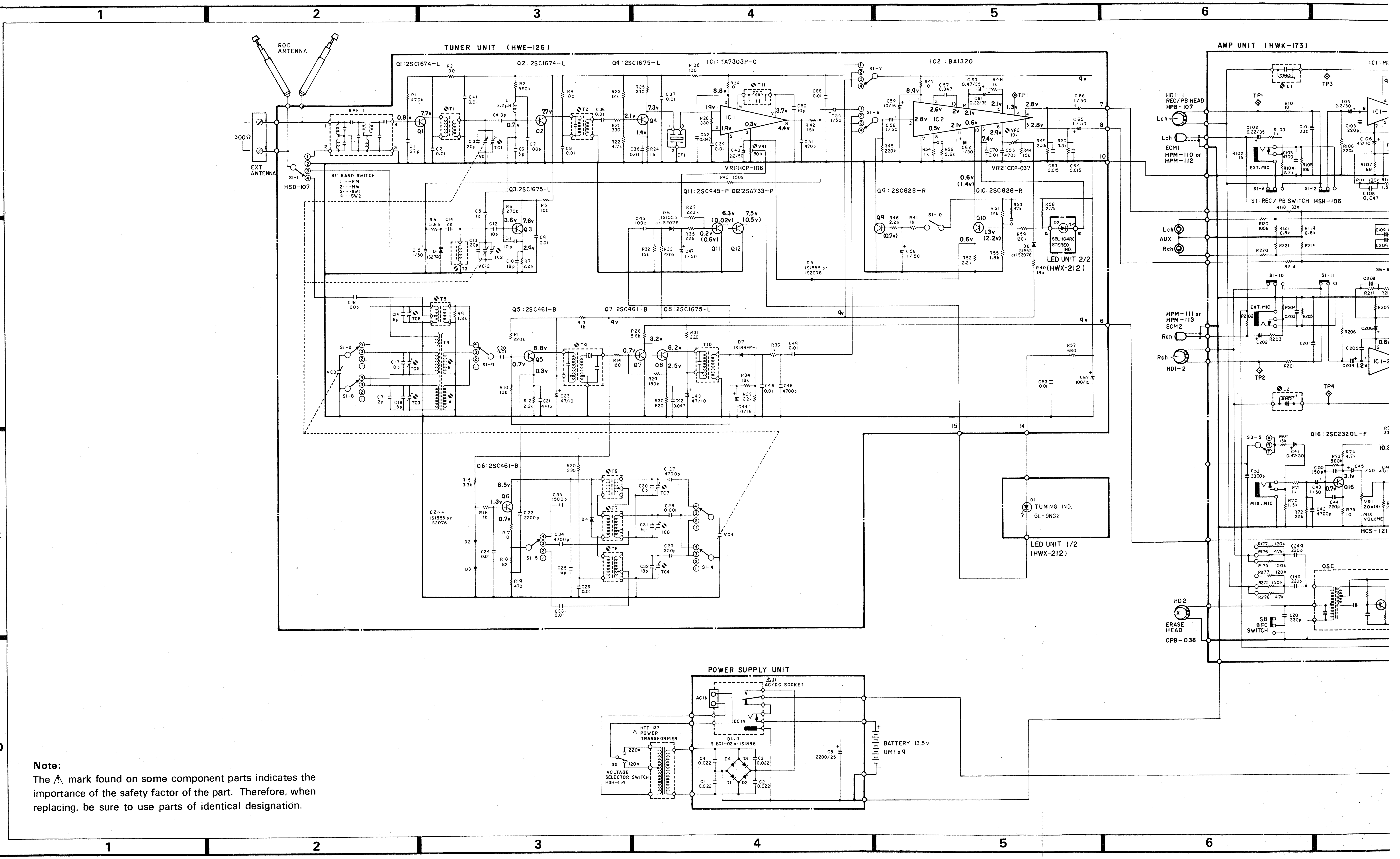

7
8
9
10
11
12
A
B
C
D
VR1: MIXING VOLUME
LED UNIT
(HWX-212)
TUNING IND.
GL-9NG2
STEREO IND.
SEL-104RC
Lch
AUX
Rch
LINE OUT
TUNER UNIT
(HWE-126)
J1-1 MIX MIC
J1-2 REMOTE
J1-3 EXT MIC (Lch)
J1-4 EXT MIC (Rch)
J1-5 EXT SP (Lch)
J1-6 EXT SP (Rch)
J1-7 HEAD PHONE
Lch ECM 1
Rch ECM 2
BFC SWITCH
HD 2
ERASE HEAD
To AMP UNIT 1～14
SENSING UNIT
S1 AUTO REPEAT SWITCH
ROD ANTENNA
300Ω
EXT ANTENNA TERMINAL
S1 BAND SWITCH
1: FM 2: MW 3: SW1 4: SW2
AN7146M
μPC542H2-E
TA7303P-C
BA1320
SP1 Lch WOOFER
SP3 Lch TWEETER
SP4 Rch TWEETER
SP2 Rch WOOFER
C401 13/25 (NP)
C402 13/25 (NP)
S2 MEMORY SWITCH
S4
S3
S3.4. COUNTER SWITCH
S1-1: REC SWITCH
S1-2: FF SWITCH
S1-3: FF/REW SWITCH
S1-4: HEAD DETECT
Q501: 2SD468-C
D501, 502: S1B01-02 or 1S1886
D503 ～ 508: 1S1555 or 1S2076
S2 MAIN SWITCH
STOP SWITCH
PLAY/STOP SWITCH
PAUSE SWITCH
MOTOR
M
SOLENOID
S O
LED P.W. BOARD
BATTERY CHECK
OSC BLOCK
E
F
S T W

Fig. 9

CHEMATIC CIRCUIT DIAGRAM (SK-61F)


1
2
3
4
5
6
ROD ANTENNA
TUNER UNIT (HWE-126)
Q1:2SC1674-L
Q2:2SC1674-L
Q4:2SC1675-L
IC1:TA7303P-C
IC2:BA1320
300Ω
EXT ANTENNA
S1-1
HSD-107
S1 BAND SWITCH
1 FM
2 MW
3 SW1
4 SW2
BPF 1
Q3:2SC1675-L
VR1:HCP-106
VR2:CCP-037
Q11:2SC945-P Q12:2SA733-P
Q9:2SC828-R
Q10:2SC828-R
LED UNIT 2/2 (HWX-212)
SEL-104RC STEREO IND.
Q5:2SC461-B
Q7:2SC461-B
Q8:2SC1675-L
Q6:2SC461-B
D2~4 1S1555 or 1S2076
TUNING IND. GL-9NG2
LED UNIT 1/2 (HWX-212)
AMP UNIT (HWK-173)
HD1-1 REC/PB HEAD HPB-107
ECM1 HPM-110 or HPM-112
S1: REC/PB SWITCH HSH-106
AUX
HPM-111 or HPM-113 ECM2
HD1-2
Q16:2SC2320L-F
MIX.MIC
MIX VOLUME
HCS-121
OSC
HD2 ERASE HEAD CPB-038
S8 BFC SWITCH
POWER SUPPLY UNIT
J1 AC/DC SOCKET
AC IN
DC IN
HTT-137 POWER TRANSFORMER
220v
120v
VOLTAGE SELECTOR SWITCH HSH-114
D1~4 S1B01-02 or 1S1886
C5 2200/25
BATTERY 13.5v UM1 x9

Note:
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

SK-51F
SK-61F
SK-71F

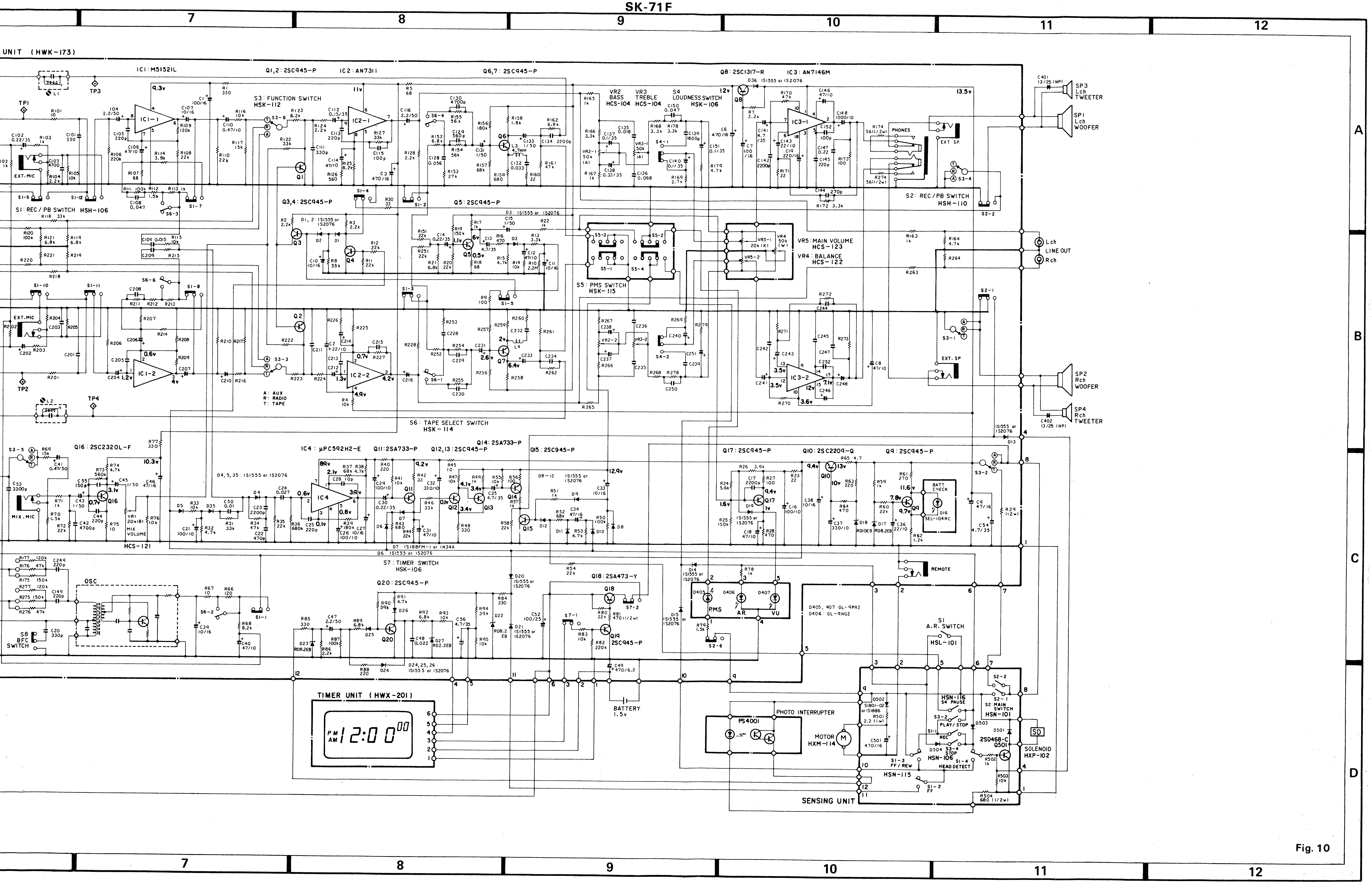
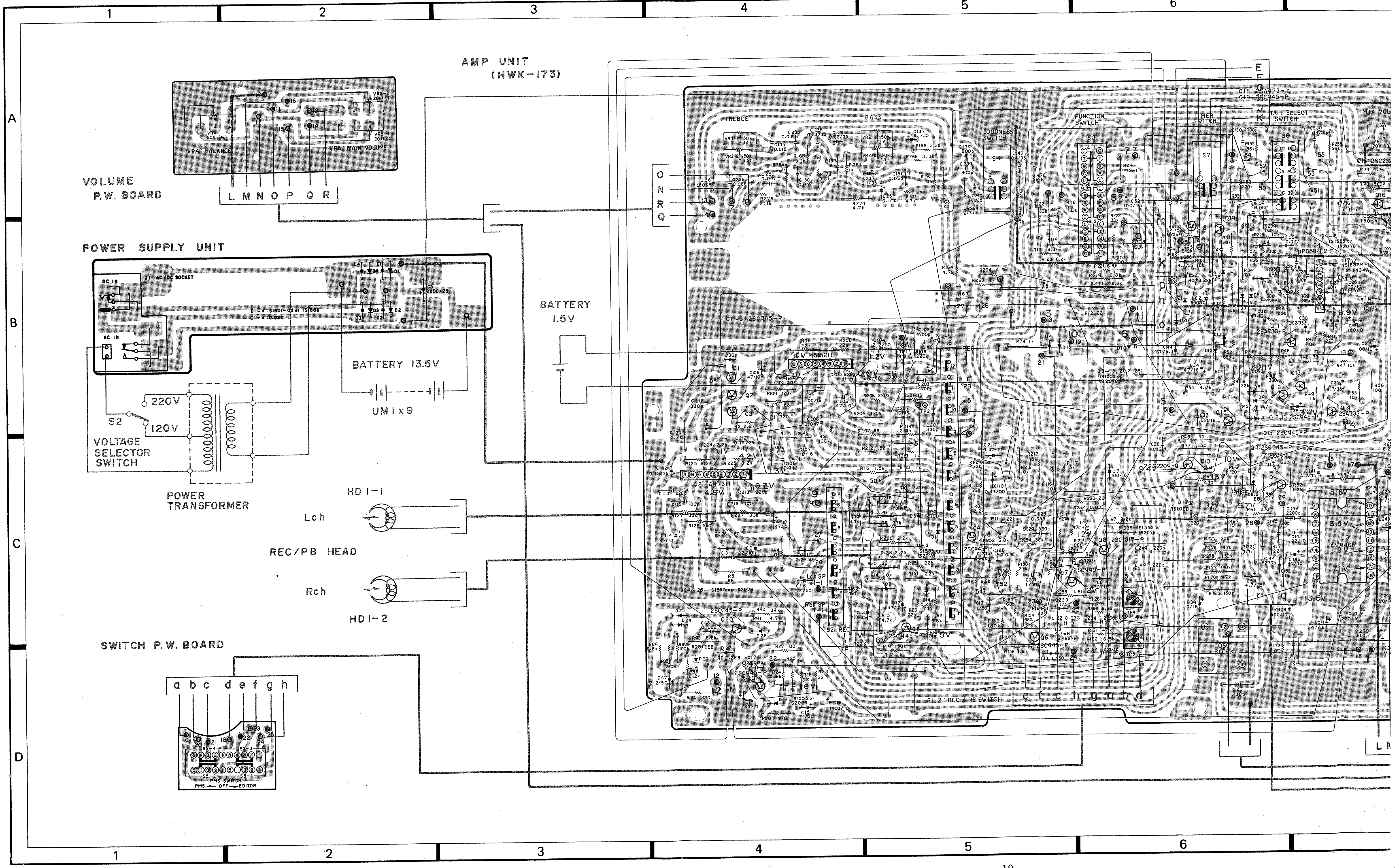

7
8
9
10
11
12
A
B
C
D
UNIT (HWK-173)
IC1: M5152IL
Q1,2: 2SC945-P
IC2: AN7311
Q6,7: 2SC945-P
Q8: 2SC1317-R
IC3: AN7146M
S3: FUNCTION SWITCH HSK-112
VR2 BASS HCS-104
VR3 TREBLE HCS-104
S4 LOUDNESS SWITCH HSK-106
S1: REC/PB SWITCH HSH-106
Q3,4: 2SC945-P
Q5: 2SC945-P
S5: PMS SWITCH HSK-115
VR5: MAIN VOLUME HCS-123
VR4: BALANCE HCS-122
S2: REC/PB SWITCH HSH-110
SP3 Lch TWEETER
SP1 Lch WOOFER
SP2 Rch WOOFER
SP4 Rch TWEETER
PHONES
EXT. SP.
Lch
LINE OUT
Rch
EXT. MIC
TP1
TP2
TP3
TP4
L1
L2
A: AUX
R: RADIO
T: TAPE
S6: TAPE SELECT SWITCH HSK-114
Q16: 2SC2320L-F
IC4: μPC592H2-E
Q11: 2SA733-P
Q12,13: 2SC945-P
Q14: 2SA733-P
Q15: 2SC945-P
Q17: 2SC945-P
Q10: 2SC2209-Q
Q9: 2SC945-P
BATT CHECK
SEL-104RC
MIX. MIC
VR1 20kB MIX VOLUME
HCS-121
S7: TIMER SWITCH HSK-106
Q20: 2SC945-P
Q18: 2SA473-Y
Q19 2SC945-P
OSC
S8 BFC SWITCH
REMOTE
PMS
A.R.
VU
0405, 407: GL-9PR2
0406: GL-9NG2
S1 A.R. SWITCH HSL-101
TIMER UNIT (HWX-201)
PM AM 12:00 00
BATTERY 1.5v
PHOTO INTERRUPTER
PS4001
MOTOR HXM-114
HSN-116 S4 PAUSE
S2: MAIN SWITCH HSN-101
S3-2 PLAY/STOP
REC
S3-4 STOP
S1-4 HEAD DETECT
HSN-106
S1-3 FF/REW
HSN-115
S1-2 FF
SD
2SD468-C Q501
SOLENOID HXP-102
SENSING UNIT

Fig. 10

CONNECTION DIAGRAM (SK-61F)


1
2
3
4
5
6
A
B
C
D
AMP UNIT
(HWK-173)
VR5-2 20k(K)
VR5-1 20k(K)
VR4 50k(W)
VR4: BALANCE
VR5: MAIN VOLUME
VOLUME
P.W. BOARD
L M N O P Q R
POWER SUPPLY UNIT
J1 AC/DC SOCKET
DC IN
AC IN
D1~4: S1B01-02 or 1S1886
C1~4: 0.022
C5 2200/25
BATTERY 13.5V
UM1x9
BATTERY
1.5V
220V
120V
S2
VOLTAGE
SELECTOR
SWITCH
POWER
TRANSFORMER
HD1-1
Lch
REC/PB HEAD
Rch
HD1-2
SWITCH P.W. BOARD
a b c d e f g h
PMS SWITCH
PMS — OFF — EDITOR
S5-1
S5-2
S5-3
S5-4
O
N
R
Q
TREBLE
BASS
LOUDNESS SWITCH
S4
FUNCTION SWITCH
S3
TIMER SWITCH
S7
TAPE SELECT SWITCH
S6
MIX VOL
E
F
G
H
J
K
Q18: 2SA473-Y
Q19: 2SC945-P
Q1~3: 2SC945-P
IC1 M51521L
IC2 AN7311
IC3 AN7146M
IC4 µPC542H2-E
S1
REC
PB
Lch SP
Rch SP
Q20 2SC945-P
D24~26: 1S1555 or 1S2076
D5~15, 20, 21, 35: 1S1555 or 1S2076
Q12, 13: 2SC945-P
Q14 2SA733-P
Q11 2SA733-P
Q15 2SC945-P
Q9: 2SC945-P
Q10
Q8 2SC317-R
Q7 2SC945-P
Q6 2SC945-P
Q5 2SC945-P
Q4 2SC945-P
Q17 2SC945-P
Q16 2SC232
OSC BLOCK
TP1
TP2
TP4
TP5
S1, 2: REC / PB SWITCH
e f c h g a b d
L M
13.5V
12V
3.6V
3.5V
7.1V
6.9V
10V
7.8V
9.7V
6.4V
1.2V
0.64V
9.4V
4.2V
4.9V
0.7V
1.1V
16V

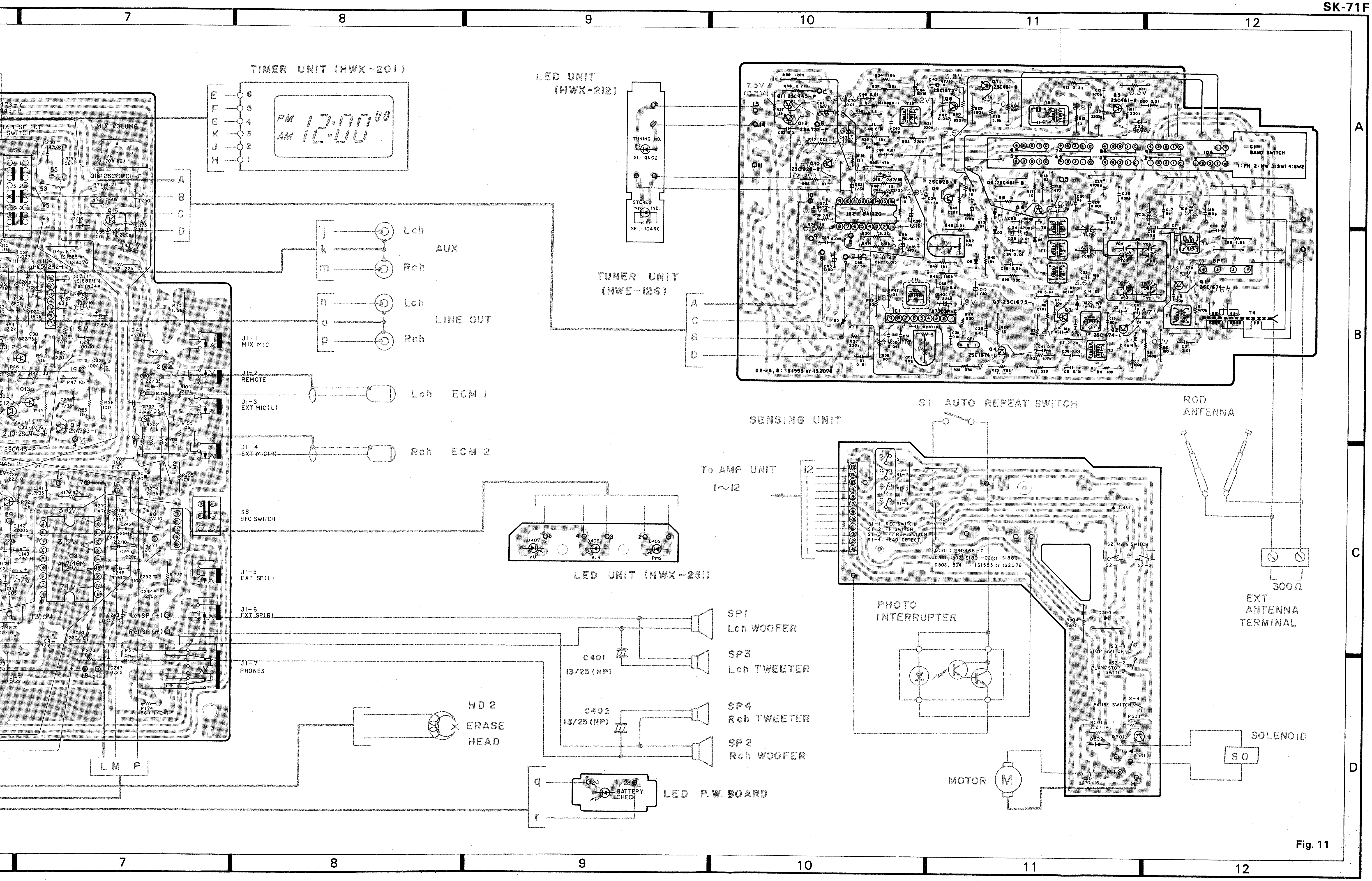
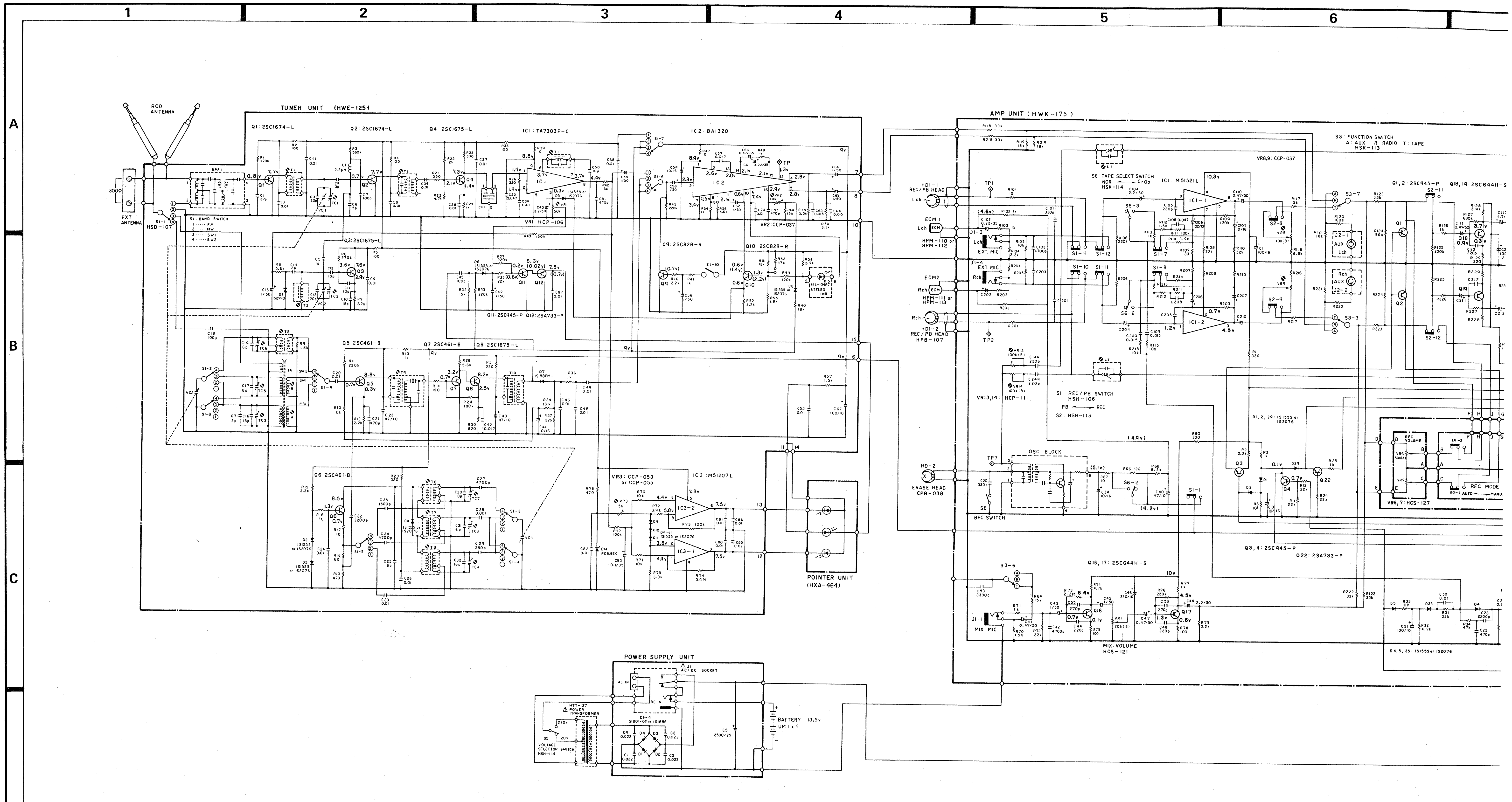

7
8
9
10
11
12
A
B
C
D
TIMER UNIT (HWX-201)
E F G K J H
6 5 4 3 2 1
PM 12:00 00
AM 12:00
LED UNIT (HWX-212)
TUNING IND.
GL-9NG2
STEREO IND.
SEL-104RC
TUNER UNIT (HWE-126)
TAPE SELECT SWITCH
S6
MIX VOLUME
VR1 20k (B)
Q16: 2SC2320L-F
IC4 μPC592H2-E
IC3 AN7146M
3.5V
12V
7.1V
13.5V
3.6V
Q12, 13: 2SC945-P
Q14 2SA733-P
AUX
Lch
Rch
j k m
LINE OUT
n o p
J1-1 MIX MIC
J1-2 REMOTE
J1-3 EXT MIC(L)
J1-4 EXT MIC(R)
Lch ECM 1
Rch ECM 2
S8 BFC SWITCH
J1-5 EXT SP(L)
J1-6 EXT SP(R)
J1-7 PHONES
Lch SP (+)
Rch SP (+)
L M P
LED UNIT (HWX-231)
D407 VU
D406 A.R
D405 PMS
C401 13/25 (NP)
C402 13/25 (NP)
SP1 Lch WOOFER
SP3 Lch TWEETER
SP4 Rch TWEETER
SP2 Rch WOOFER
HD2 ERASE HEAD
q r
LED P.W. BOARD
BATTERY CHECK
S1 BAND SWITCH
1: FM 2: MW 3: SW1 4: SW2
IC1 TA7303P
IC2 BA1320
Q1, 2, 3: 2SC1674-L
Q5, 6, 7: 2SC461-B
Q9, 10: 2SC828-R
Q11: 2SC945-P
Q12: 2SA733-P
Q4: 2SC1675-L
D2-6, 8: 1S1555 or 1S2076
SENSING UNIT
S1 AUTO REPEAT SWITCH
To AMP UNIT 1~12
S1-1: REC SWITCH
S1-2: FF SWITCH
S1-3: FF/REW SWITCH
S1-4: HEAD DETECT
Q501: 2SD468-C
D501, 502: S1B01-02 or 1S1886
D503, 504: 1S1555 or 1S2076
S2: MAIN SWITCH
S3-1 STOP SWITCH
S3-2 PLAY/STOP SWITCH
S-4 PAUSE SWITCH
PHOTO INTERRUPTER
MOTOR
M
SOLENOID
SO
ROD ANTENNA
300Ω
EXT ANTENNA TERMINAL

Fig. 11

SCHEMATIC CIRCUIT DIAGRAM (SK-71F)


1
2
3
4
5
6
A
B
C
D
ROD ANTENNA
EXT ANTENNA
300Ω
S1-1 HSD-107
TUNER UNIT (HWE-125)
Q1: 2SC1674-L
Q2: 2SC1674-L
Q4: 2SC1675-L
IC1: TA7303P-C
IC2: BA1320
Q3: 2SC1675-L
BPF1
S1 BAND SWITCH
1 ····· FM
2 ····· MW
3 ····· SW1
4 ····· SW2
VR1 HCP-106
VR2: CCP-037
Q9: 2SC828-R
Q10: 2SC828-R
STEREO IND
Q11: 2SC945-P Q12: 2SA733-P
Q5: 2SC461-B
Q7: 2SC461-B
Q8: 2SC1675-L
Q6: 2SC461-B
VR3: CCP-053 or CCP-055
IC3: M51207L
POINTER UNIT (HXA-464)
POWER SUPPLY UNIT
AC IN
J1 AC/DC SOCKET
DC IN
HTT-137 POWER TRANSFORMER
S5
VOLTAGE SELECTOR SWITCH HSH-114
D1~4 S1B01-02 or 1S1886
BATTERY 13.5V UM1 x 9
C5 2500/25
AMP UNIT (HWK-175)
HD1-1 REC/PB HEAD
ECM1
HPM-110 or HPM-112
ECM2
HPM-111 or HPM-113
HD1-2 REC/PB HEAD HPB-107
J1-3 EXT. MIC
J1-4 EXT. MIC
TP1
TP2
TP7
S6 TAPE SELECT SWITCH
NOR. ←→ CrO2
HSK-114
IC1: M51521L
VR8,9: CCP-037
S3 FUNCTION SWITCH
A: AUX R: RADIO T: TAPE
HSK-113
Q1,2: 2SC945-P
Q18,19: 2SC644H-S
J2-1 AUX Lch
J2-2 AUX Rch
VR13,14: HCP-111
S1 REC/PB SWITCH HSH-106
PB ←→ REC
S2: HSH-113
D1, 2, 29: 1S1555 or 1S2076
HD-2 ERASE HEAD CPB-038
OSC BLOCK
S8 BFC SWITCH
Q3, 4: 2SC945-P
Q22: 2SA733-P
REC VOLUME
REC MODE
AUTO
MANU
VR6, 7: HCS-127
J1-1 MIX MIC
Q16, 17: 2SC644H-S
MIX. VOLUME HCS-121
D4, 5, 35: 1S1555 or 1S2076

Note:
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

1 2 3 4 5 6

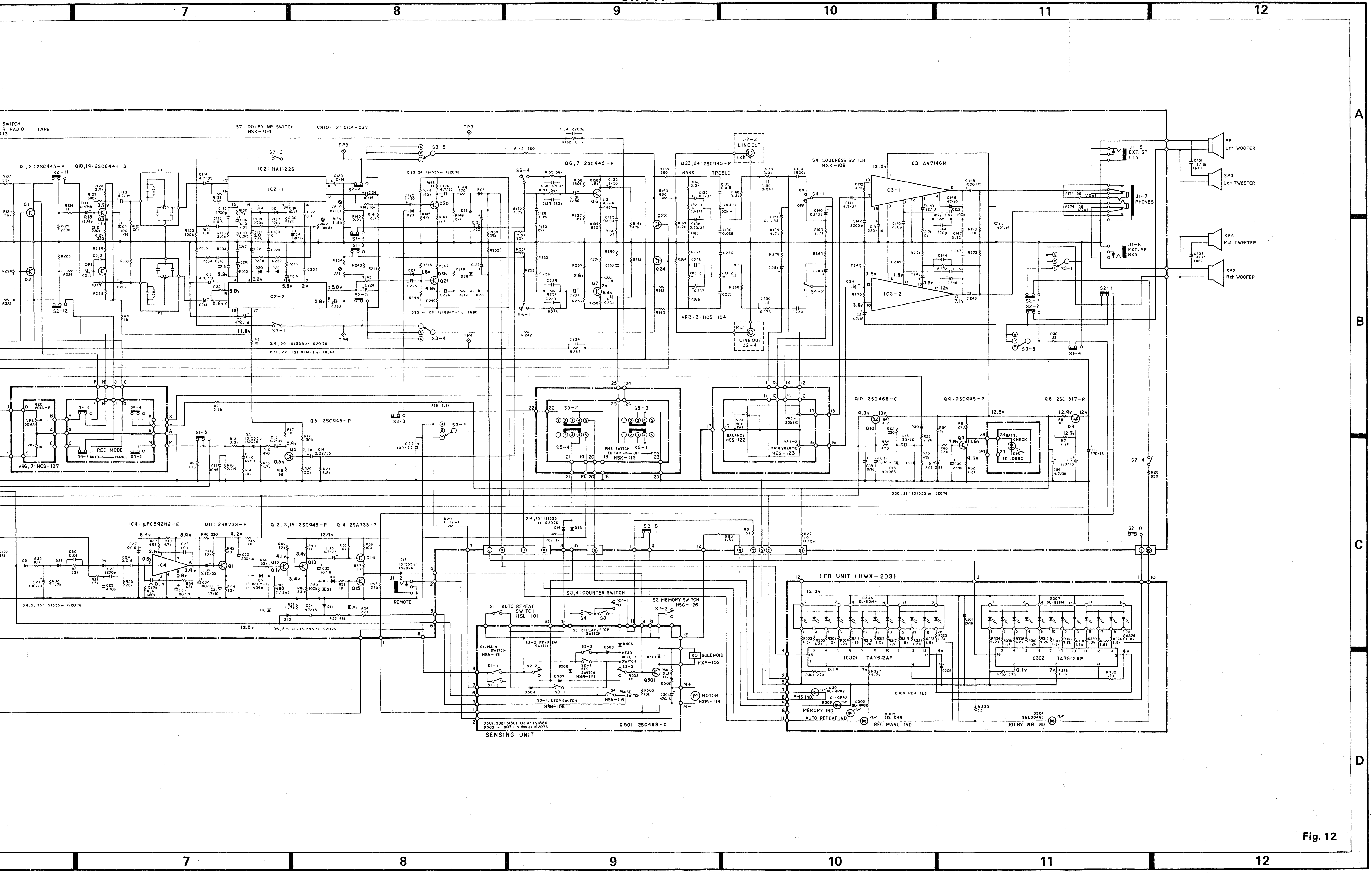
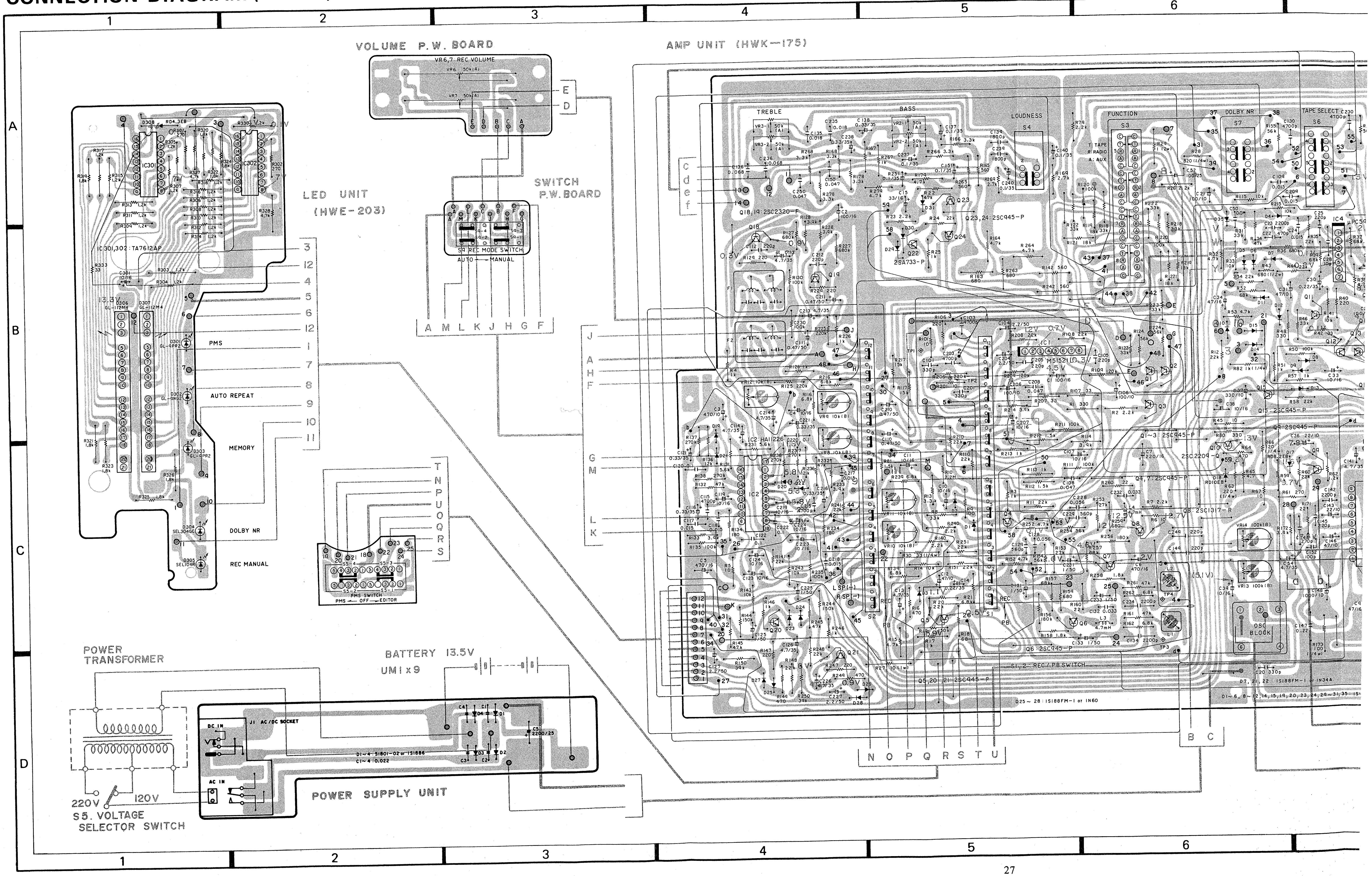

7
8
9
10
11
12
A
B
C
D
S7: DOLBY NR SWITCH HSK-109
VR10~12: CCP-037
Q1,2: 2SC945-P
Q18,19: 2SC644H-S
IC2: HA11226
IC2-1
IC2-2
F1
F2
D19,20: 1S1555 or 1S2076
D21,22: 1S188FM-1 or 1N34A
D23,24: 1S1555 or 1S2076
D25~28: 1S188FM-1 or 1N60
Q6,7: 2SC945-P
Q23,24: 2SC945-P
BASS
TREBLE
VR2,3: HCS-104
J2-3 LINE OUT Lch
J2-4 LINE OUT Rch
S4: LOUDNESS SWITCH HSK-106
IC3: AN7146M
IC3-1
IC3-2
J1-5 EXT. SP Lch
J1-7 PHONES
J1-6 EXT. SP Rch
SP1 Lch WOOFER
SP3 Lch TWEETER
SP4 Rch TWEETER
SP2 Rch WOOFER
REC VOLUME
VR6,7: HCS-127
REC MODE
S4-1 AUTO — MANU. S4-2
Q5: 2SC945-P
S5-2
S5-3
S5-4
S5-1
PMS SWITCH EDITOR — OFF — PMS HSK-115
BALANCE HCS-122
MAIN VOLUME HCS-123
Q10: 2SD468-C
Q9: 2SC945-P
Q8: 2SC1317-R
BATT. CHECK
D16 SEL106RC
D30,31: 1S1555 or 1S2076
IC4: μPC592H2-E
Q11: 2SA733-P
Q12,13,15: 2SC945-P
Q14: 2SA733-P
D4,5,35: 1S1555 or 1S2076
D6,8~12: 1S1555 or 1S2076
REMOTE
D14,15: 1S1555 or 1S2076
S3,4: COUNTER SWITCH
S2 MEMORY SWITCH HSG-126
S1 AUTO REPEAT SWITCH HSL-101
S3-2: PLAY/STOP SWITCH
S1: MAIN SWITCH HSN-101
S2-2 FF/REW SWITCH
HEAD DETECT SWITCH
S2-1 REC SWITCH HSN-119
S3-1: STOP SWITCH HSN-106
S4 PAUSE SWITCH HSN-116
SOLENOID HXP-102
MOTOR HXM-114
D501, 502: S1B01-02 or 1S1886
D503~507: 1S1555 or 1S2076
Q501: 2SC468-C
SENSING UNIT
LED UNIT (HWX-203)
D306 GL-112M4
D307 GL-112M4
IC301 TA7612AP
IC302 TA7612AP
PMS IND.
D301 GL-9PR2
D303 GL-9PR2
MEMORY IND.
D302 GL-9NG2
AUTO REPEAT IND.
D305 SEL104R
REC. MANU. IND.
D304 SEL304GC
DOLBY NR IND.
D308 RD4.3EB

Fig. 12

CONNECTION DIAGRAM (SK-71F)


VOLUME P.W. BOARD
VR6,7 REC VOLUME
AMP UNIT (HWK-175)
LED UNIT (HWE-203)
SWITCH P.W. BOARD
S4 REC MODE SWITCH
AUTO — MANUAL
IC301,302 : TA7612AP
PMS
AUTO REPEAT
MEMORY
DOLBY NR
REC MANUAL
PMS SWITCH
PMS — OFF — EDITOR
TREBLE
BASS
LOUDNESS
FUNCTION
DOLBY NR
TAPE SELECT
T: TAPE
R: RADIO
A: AUX
Q18,19 : 2SC2320-F
Q23,24 : 2SC945-P
2SA733-P
IC1 M51521
IC2 HA1226
Q1~3 : 2SC945-P
Q4,7 : 2SC945-P
Q8 : 2SC1317-R
Q6 2SC945-P
Q5,20,21 2SC945-P
Q15 2SC945-P
S1,2 — REC/PB SWITCH
OSC BLOCK
D25~28 : 1S188FM-1 or 1N60
POWER TRANSFORMER
BATTERY 13.5V
UM1 x 9
J1 AC/DC SOCKET
DC IN
AC IN
D1~4 : S1801-02 or 1S1886
C1~4 : 0.022
POWER SUPPLY UNIT
220V
120V
S5. VOLTAGE SELECTOR SWITCH
1
2
3
4
5
6
A
B
C
D

PARTS LIST

NOTE:
When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56×10^1 561 .... RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J
47kΩ 47×10^3 473 .... RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J
0.5Ω 0R5 .... RN2H $\boxed{0}\boxed{R}\boxed{5}$ K
1Ω 010 .... RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562×10^1 .... RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Tuner Unit (HWE-126) (SK-51F, 61F), (HWE-125) (SK-71F)

MISCELLANEOUS

Part No.	Symbol & Description	
TA7303P	IC1	
BA1320	IC2	
M51207L	IC3 (SK-71F)	
2SC1674-L	Q1, Q2	
2SC1675-L	Q3, Q4, Q8	
2SC461-B	Q5—Q7	
2SC828-R	Q9, Q10	
2SC945-P	Q11	
2SA733-P	Q12	
1S2790	D1	
1S2076 or	D2—D6, D8,	
1S1555	D9—D11 (SK-71F)	
1S188FM-1	D7	
VACANT	D9—D13 (SK-51F, 61F)	
	D12, D13 (SK-71F)	
RD6.8EC	D14 (SK-71F)	
SEL104RC	D15 (SK-71F)	
CTF-010	L1	Ferri-Inductor, 2.2μH
CTC-061	T1	Coil
CTC-028 or	T2	IF Transformer
CTC-040		
HTC-135	T3	Coil
HTX-121	T4	Bar Antenna
HTC-139	T5	Coil
HTC-136	T6	Coil
HTC-137	T7	Coil
HTC-164	T8	Coil
HTE-118	T9	IF Transformer
CTE-038	T10	IF Transformer
CTC-080	T11	IF Transformer

Part No.	Symbol & Description	
CTF-038	CF1	Ceramic Filter
HCK-102	TC5—TC8	Trimmer
HWW-106	BPF1	Filter
HCP-106	VR1	Semi-fixed, 50 kΩ
CCP-037	VR2	Semi-fixed, 10 kΩ
CCP-053 or	VR3	Semi-fixed, 5 kΩ (SK-71F)
CCP-055		
HCL-105	VC1—VC4, TC1—TC4	
		Variable Condenser
HSD-107	S1	Switch

RESISTORS

Part No.	Symbol & Description
RD1/4PM□□□J	R1—R7, R9—R40, R42—R50,
	R52—R55, R57—R59,
	R70—R77 (SK-71F)
RD1/4VM□□□J	R8, R41, R51, R56
VACANT	R60—R69 (SK-71F)

CAPACITORS

Part No.	Symbol & Description
CCDSL270K50	C1
VACANT	C2
CCDSH200K50	C3
CCDSL030D50	C4
CCDCK010C50	C5
CCDSL050D50	C6
CKDYB101K50	C7, C18, C45
CKDYF103Z25	C8, C20, C36, C37, C41, C48, C53, C68, C70,
	C80—C82 (SK-71F), C85—C87 (SK-71F)
CKDYD103M50	C9, C24, C26, C33, C38, C39, C46

Part No.	Symbol & Description
CCDSH180K50	C10
CCDSH100F50	C11, C12, C50
CCDPH200K50	C13
CCDSH020D50	C14, C71
CEA010M50L	C15, C47, C54, C56, C58, C62, C65
CCDSH150J50	C16
CCDSH080D50	C17, C19
CKDYB471K50	C21, C51
CQMA222M50	C22
CEA470M10L	C23
CCDCH060D50	C25
CQSH472K50	C27
CQSH102J50	C28
CQSH351J50	C29
CCDWK080J50	C30
CCDXL060D50	C31
CCDSH180J50	C32
CQMA472M50	C34
CQMA152K50	C35
CEA2R2M50L	C40
CKDBC473M25	C42, C52, C57
CEA470M10L	C43
CEA100M16L	C44, C59
CQMA103M50	C49
CQSH471J50	C55
CSZAR47M35	C60
CSZAR22M35	C61
CQMA153M50	C63, C64
CEA010M50	C66
CEA101M10L	C67
VACANT	C69,
	C72—C79 (SK-71F)
CSZAR10M35	C83 (SK-71F)

Amp Unit (HWK-172) (SK-51F) (HWK-173) (SK-61F) (HWK-175) (SK-71F)

MISCELLANEOUS

Part No.	Symbol & Description	
M51521L	IC1	
AN7311	IC2 (SK-51F, 61F)	
HA11226	IC2 (SK-71F)	
AN7146M	IC3	
μPC592H2-E	IC4	
2SC945-P	Q1, Q2, Q15	
2SC945	Q3—Q7, Q9, Q12, Q13, Q20	
2SC1317-R	Q8	
2SC2209	Q10	
2SA733	Q11, Q14	
2SC2320L-F	Q16	
2SC945-P	Q17 (SK-51F, 61F)	
2SC2320L-F	Q17—Q19 (SK-71F)	
2SC945	Q18, Q19 (SK-51F)	
2SA473-Y	Q18 (SK-61F)	
2SC945-P	Q19 (SK-61F)	
2SA733	Q21 (SK-51F)	
2SC945	Q21 (SK-71F)	
2SA733	Q22 (SK-71F)	
2SC945-P	Q23, Q24 (SK-71F)	
1S1555 or	D1—D6, D8—D15, D19, D20,	
1S2076	D24, D35	
1S188FM-1 or	D7	
1N34A		
SEL104RC	D16	
RD8.2EB	D17	
RD10EB	D18	
RD6.8EB	D21 (SK-51F)	
1S1555 or	D21 (SK-61F)	
1S2076		
1S188FM-1 or	D21, D22 (SK-71F)	
1N34A		
1S1555 or	D22, D23, (SK-51F)	
1S2076		
RD8.2EB	D22, D23 (SK-61F)	
1S1555 or	D23 (SK-71F)	
1S2076		
1S1555 or	D25, D26 (SK-51F, 61F)	
1S2076		
1S188FM-1 or	D25—D28 (SK-71F)	
1N60		
GL-9PR2	D27 (SK-51F)	
RD2.2EB	D27 (SK-61F)	
GL-9NG2	D28 (SK-51F)	
VACANT	D28—D34 (SK-61F)	
SLR-30UR	D29 (SK-51F)	
1S1555 or	D29—D31 (SK-71F)	
1S2076		
GL-9PR2	D30, D31, D33 (SK-51F)	
VACANT	D32—D34 (SK-71F)	
GL-9NG2	D32 (SK-51F)	
1S1555 or	D34, D36 (SK-51F)	
1S2076		
HTF-112	L1, L2	Coil
HTH-105	L3, L4	Coil, 4.7 mH
HTX-115	OSC	Oscillator Unit
HTX-116	F1, F2 (SK-71F)	Filter Unit
HKN-115	J1	Jack Unit
HSH-106	S1	Switch
HSH-110	S2 (SK-51F, 61F)	Switch
HSH-113	S2 (SK-71F)	Switch
HSK-112	S3 (SK-51F, 61F)	Switch
HSK-113	S3 (SK-71F)	Switch
HSK-106	S4	Switch
HSK-115	S5	Switch
HSK-114	S6 (SK-61F, 71F)	Switch
HSK-106	S7 (SK-61F)	Switch
HSK-109	S7 (SK-71F)	Switch
HSG-127	S9 (SK-71F)	Switch
HCS-121	VR1	Volume, 20 kΩ(B)

Part No.
HCS-104
HCS-122
HCS-123
HCS-127
CCP-037
HCP-111

RESISTORS (SK

Part No.
RD1/4PM□□□J
RN2P□□□K
RD1/4PS□□□J
RD1/2VS□□□J
RD1/2PS□□□J
VACANT

RESISTORS (SK

Part No.
RD1/4PM□□□J
RN2P□□□K
RD1/4PS□□□J
RD1/2VS□□□J
RD1/2PS□□□J
RD1/4VS□□□J
VACANT

RESISTORS (SK

Part No.
RD1/4PM□□□J
RD1/2PS□□□J
RD1/4PS□□□J
RN2P□□□K
RD1/2VS□□□J
VACANT

Part No.	Symbol & Description
HCS-104	VR2, VR3 Volume, 50 kΩ(A)
HCS-122	VR4 Volume, 50 kΩ(W)
HCS-123	VR5 Volume, 20 kΩ(K)
HCS-127	VR6, 7 (SK-71F) Volume, 50 kΩ(A)
CCP-037	VR8—VR12 (SK-71F) Semi-fixed, 10 kΩ(B)
HCP-111	VR13, VR14 (SK-71F) Semi-fixed, 100 kΩ(B)

RESISTORS (SK-51F)

Part No.	Symbol & Description
RD1/4PM□□□J	R1—R5, R7—R28, R31—R42, R44—R62, R64, R65, R68—R77, R79—R94, R101—R112, R114—R128, R151—R154, R156—R172, R176—R179, R201—R212, R214—R228, R251—R254, R256—R272, R275—R279
RN2P□□□K	R29
RD1/4PS□□□J	R30, R63, R66, R78, R173, R273
RD1/2VS□□□J	R43
RD1/2PS□□□J	R174, R274
VACANT	R6, R67, R95—R100, R113, R129—R150, R155, R180—R200, R213, R229—R250, R255

RESISTORS (SK-61F)

Part No.	Symbol & Description
RD1/4PM□□□J	R1—R5, R7—R28, R31—R42, R44—R62, R64, R65, R67—R77, R79, R80, R82, R83, R86—R95, R101—R128, R151—R172, R175—R179, R201—R228, R251—R272, R275—R279
RN2P□□□K	R29
RD1/4PS□□□J	R30, R63, R66, R78, R85, R173, R273
RD1/2VS□□□J	R43
RD1/2PS□□□J	R81, R174, R274
RD1/4VS□□□J	R84
VACANT	R6, R96—R100, R129—R150, R180—R200, R229—R250

RESISTORS (SK-71F)

Part No.	Symbol & Description
RD1/4PM□□□J	R1—R26, R31—R42, R44—R62, R64, R65, R67—R81, R83, R101—R172, R178, R179, R201—R272, R278, R279
RD1/2PS□□□J	R27, R174, R274
RD1/4PS□□□J	R28, R30, R63, R66, R82, R173, R273
RN2P□□□K	R29
RD1/2VS□□□J	R43
VACANT	R84—R100, R175—R177, R180—R200, R275—R277

CAPACITORS (SK-51F, 61F)

Part No.	Symbol & Description
CEA101P16	C1, C7
CEA220P10	C2, C36, C143, C243
CEA471M16L	C3, C6
VACANT	C4, C5
CEA470P10	C8, C18, C31, C40, C106, C114, C146, C206, C214, C246
CEA470P16	C9, C34, C46
CEA100P16L	C10, C11, C33, C38, C39, C107, C207
CEA470P10L	C12
CEA4R7P35	C13, C35, C54, C141, C241
CSZAR22M35	C14, C30, C102, C202
CEA010P50	C15, C43, C45, C131, C133, C231, C233
CEA101P10	C16, C21, C26, C29
CKDYB222K50	C17, C23, C142, C242
CEA221P16	C19
CKDYB331K50	C20, C101, C111, C201, C211
CKDYB471K50	C22
CQMA273K50	C24
CKDYB221K50	C25, C44, C105, C145, C205, C245
CEA100P16	C27
CCPSL100J50	C28
CEA331P10	C32, C37
CEAR47P50	C41, C110, C210
CKDYB472K50	C42, C103, C203
CEA220P10	C47 (SK-51F)
CEA2R2P50	C47 (SK-61F)
CEA100P16	C48 (SK-51F)
CKDYF223Z25	C48 (SK-61F)
CEA100P16	C49 (SK-51F)
CEA471P6	C49 (SK-61F)
CQMA103M50	C50
CEA2R2M25NP	C51 (SK-51F)
VACANT	C51 (SK-61F)
CEA101P25	C52
CQMA332K50	C53
CKDYB151K50	C55
VACANT	C56 (SK-51F)
CEA4R7P35	C56 (SK-61F)
VACANT	C57—C100
CEA2R2P50	C104, C116, C204, C216
CQMA473K50	C108, C150, C208, C250
CQMA153M50	C109, C209
CSZAR15M35	C112, C212
CKPYB221K50	C113, C149, C213, C249
CCPSL101J50	C115, C215
VACANT	C117—C127, C217—C227
CQMA563M50	C128, C228
CKDYB561K50	C129, C229
VACANT	C130, C230 (SK-51F)
CKDYB472K50	C130, C230 (SK-61F)
CQMA333K50	C132, C232
CKPYX222M50	C134, C234
CQMA183M50	C135, C235
CQMA683M50	C136, C236
CSZAR10M35	C137, C140, C151, C237, C240, C251
CSZAR33M35	C138, C238
CKDYB182K50	C139, C239
VACANT	C140—C143, C240—C243
CKPYB271K50	C144, C244
VACANT	C145, C146, C245, C246
CQMA224M50	C147, C247
CEA102P10	C148, C248
VACANT	C149—C151, C249—C251
CKDYB101K50	C152, C252

CAPACITORS (SK-71F)

Part No.	Symbol & Description
CEA101P16	C1, C2
CEA471P10L	C3
CEA100P16	C4, C11, C27, C33, C38, C39, C107, C119, C123, C124, C207, C219, C223, C224
CEA471P16	C5, C6
CEA221P16	C7, C19, C46
CEA470P10	C8, C31, C40, C146, C246
CEA470P16	C9, C34
CEA100P16L	C10
CEA470P10L	C12
CEA4R7P35L	C13
CSZAR22M35	C14, C30, C102, C202
CEA330P16	C15
VACANT	C16—C18
CKDYB331K50	C20, C101, C201
CEA101P10	C21, C26, C29, C106, C206
CKDYB471K50	C22
CKDYB222K50	C23, C134, C142, C234, C242
CQMA153M50	C24, C109, C209
CKDYB221K50	C25, C44, C48, C105, C112, C145, C205, C212, C245
CCPSL100J50	C28
CEA331P10	C32, C37
CEA4R7P35	C35, C54, C113, C114, C126, C141, C213, C214, C226, C241
CEA220P10	C36, C143, C243
CEAR47P50	C41, C47, C110, C111, C210, C211
CKDYB472K50	C42, C103, C130, C203, C230
CEA010P50	C43, C45, C125, C131, C133, C225, C231, C233
CEA2R2P50	C49, C104, C127, C204, C227
CQMA103M50	C50
VACANT	C51
CEA101P25	C52
CQMA332K50	C53
CKDYB271K50	C55, C56, C144, C244
VACANT	C57—C100
CQMA473K50	C108, C150, C208, C250
CQMA472J50	C115, C215
CSZAR33M35	C116, C121, C138, C216, C221, C238
CQMA153J50	C117, C118, C217, C218
CQMA104K50	C120, C122, C220, C222
CQMA563M50	C128, C228
CKDYB561K50	C129, C229
CQMA333K50	C132, C232
CQMA183M50	C135, C235
CQMA683M50	C136, C236
CSZAR10M35	C137, C140, C151, C237, C240, C251
CKDYB182K50	C139, C239
CQMA224M50	C147, C247
CEA102P10	C148, C248
CKPYB221K50	C149, C249
CKDYB101K50	C152, C252
VACANT	C153—C200

LED Unit (HWX-212) (SK-51F, 61F)

Part No.	Symbol & Description
SEL-104RC	D1
GL-9NG2	D2

LED Unit (HWX-231) (SK-61F)

Part No.	Symbol & Description
GL-9PR2	D405, D407
GL-9NG2	D406

LED Unit (HWX-203) (SK-71F)

Part No.	Symbol & Description
TA7612AP	IC301, IC302
GL-9PR2	D301, D303
GL-9NG2	D302
SEL304GC	D304
SEL104R	D305
GL-112M4	D306, D307
RD4.3EB	D308
RD1/4HS□□□J	R301, R302, R305—R332
RD1/4PS□□□J	R303, R304
CEA100P16	C301

Sensing Unit

Part No.	Symbol & Description
2SD468-C	Q501
SIB01-02 or 1S1886	D501, D502
1S1555 or 1S2076	D503—D504, D505—D507 (SK-51F, 71F), D508 (SK-51F)
HSN-115	S1 Switch (SK-51F, 61F)
HSN-101	S1 Switch (SK-71F)
HSN-101	S2 Switch (SK-51F, 61F)
HSN-119	S2 Switch (SK-71F)
HSN-106	S3 Switch

Part No.	Symbol & Description	
HSN-116	S4	Switch
RN1P□□□K	R501	
RD1/4PS□□□J	R502	
RD1/4VS□□□J	R503	
CEA471P16	C501	

Power Supply Unit

Part No.	Symbol & Description	
1S1886 or SIB01-02	D1 – D4	
⚠ CKP-020	J1	AC/DC Socket
CKDYF223Z25	C1 – C4	
CEA222P25	C5	

Miscellaneous Parts List

Note:

For "ECM1 and ECM2" employ parts combination of either "HPM-110 and HPM-111" or "HPM-112 and HPM-113".

Part No.	Symbol & Description	
HXA-464	Pointer Unit	
HCH-116	C401, C402	
⚠ HTT-137	T	Power Transformer
HPM-110 or HPM-112	ECM1	Microphone Unit
HPM-111 or HPM-113	ECM2	Microphone Unit
HPW-106	SP1, SP2	Speaker
HPW-105	SP3, SP4	Speaker
HSL-101	S1	Switch
HSG-126	S2	Switch (SK-51F, 71F)
HSH-114	S2	Switch (SK-61F)
HSH-114	S5	Switch (SK-51F, 71F)
HXM-114	M	Motor
HXP-102	SO	Solenoid
HPB-107	HD1	Head
CPB-038	HD2	Head
HWX-200	Timer Unit (SK-61F)	
PS4001	Photo Interrupter (SK-61F)	

Cabinet (Page 31) (SK-51F)

SK-51/KU			SK-51F/P	
Key No.	Part No.	Description	Part No.	Description
1.	HNM-214	Cover	HNM-198	Cover
4.	HNS-342	Case	HNS-312	Case
28.	HXA-579	Door Unit	HXA-577	Door Unit
36.	HNM-213	Cover	HNM-183	Cover

HXA-534 CASEASSY HXA-574 CASE ASSY

Chassis (Page 32)

SK-51/KU			SK-51F/P	
Key No.	Part No.	Description	Part No.	Description
1.	HWK-176	Amp Unit	HWK-172	Amp Unit
32.	HNM-212	Cover	HNM-182	Cover
34.	HWE-123	Tuner Unit	HWE-126	Tuner Unit
⚠ 70.	CKP-025	AC/DC Socket	CKP-020	AC/DC Socket
⚠ 72.	HTT-135	Power Transformer	HTT-137	Power Transformer
	————	————	HSH-114	Switch (Voltage Selector)

Packing Method (Page 34)

SK-51/KU			SK-51F/P	
Key No.	Part No.	Description	Part No.	Description
⚠ 2.	CDG-029	AC Cord	HDG-114	AC Cord
3.		Card	————	Deleted
4.	HHA-417	Carton	HHA-447	Carton
5.	HRB-147	Owner's Manual	HRD-129	Owner's Manual (English, Spanish)
			HRD-137	Owner's Manual (Persian, Arabic)

PARTS LIST

Cabinet (Page 32) (SK-61F)

SK-61/KU			SK-61F/P	
Key No.	**Part No.**	**Description**	**Part No.**	**Description**
1.	HNM-215	Cover	HNM-197	Cover
4.	HNS-343	Case	HNS-313	Case
28.	HXA-580	Door Unit	HXA-578	Door Unit
36.	HNM-213	Cover	HNM-183	Cover
48.	HNM-216	Cushion	HNM-194	Cushion
58.	HWX-231	LED Unit	———	LED Unit

Chassis (Page 32)

SK-61/KU			SK-61F/P	
Key No.	**Part No.**	**Description**	**Part No.**	**Description**
1.	HWK-177	Amp Unit	HWK-173	Amp Unit
32.	HNM-212	Cover	HNM-182	Cover
34.	HWE-123	Tuner Unit	HWE-126	Tuner Unit
⚠ 70.	CKP-025	AC/DC Socket	CKP-020	AC/DC Socket
⚠ 72.	HTT-135	Transformer	HTT-137	Transformer
75.	CBH-438	Spring	HBH-273	Spring
	———	———	HSH-114	Switch (Voltage Selector)
26.	CASE ASSY	HXA-535	HXA-575	CASE ASSY

Packing Method (Page 34)

SK-61/KU			SK-61F/P	
Key No.	**Part No.**	**Description**	**Part No.**	**Description**
⚠ 2.	CDG-029	AC Cord	HDG-114	AC Cord
3.		Card	———	Deleted
4.	HHA-418	Carton	HHA-449	Carton
5.	HRB-148	Owner's Manual	HRD-130	Owner's Manual (English, Spanish)
			HRD-138	Owner's Manual (Persian, Arabic)

Cabinet (Page 34) (SK-71F)

SK-71/KU			SK-71F/P	
Key No.	Part No.	Description	Part No.	Description
1.	HNM-215	Cover	HNM-197	Cover
28.	HXA-580	Door Unit	HXA-578	Door Unit
29.	HAC-169	Knob	HAC-175	Knob
36.	HNM-213	Cover	HNM-183	Cover
26	HXA-536	CASE ASSY	HXA-576	CASE ASSY

Chassis (Page 34)

SK-71/KU			SK-71F/P	
Key No.	Part No.	Description	Part No.	Description
1.	HWX-178	Amp Unit	HWX-175	Amp Unit
32.	HNM-212	Cover	HNM-182	Cover
34.	HWE-124	Tuner Unit	HWE-125	Tuner Unit
⚠ 70.	CKP-025	AC/DC Socket	CKP-020	AC/DC Socket
⚠ 72.	HTT-135	Transformer	HTT-137	Transformer
75.	CBH-438	Spring	HBH-273	Spring
76.	HXA-537	Pointer Unit	HXA-464	Pointer Unit
	———	———	HSH-114	Switch (Voltage Selector)

Packing Method (Page 36)

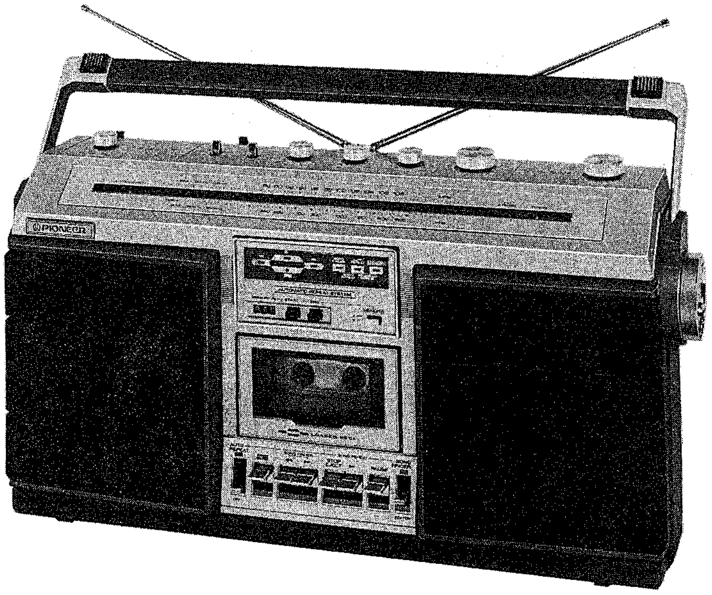
SK-71/KU			SK-71F/P	
Key No.	Part No.	Description	Part No.	Description
⚠ 2.	CDG-029	AC Cord	HDG-114	AC Cord
3.		Card	———	Deleted
4.	HHA-419	Carton	HHA-451	Carton
5.	HRB-149	Owner's Manual	HRD-131	Owner's Manual (English, Spanish)
			HRD-139	Owner's Manual (Persian, Arabic)

3609

SK-51 KU

AM/FM STEREO RADIO
CASSETTE RECORDER

SERVICE MANUAL



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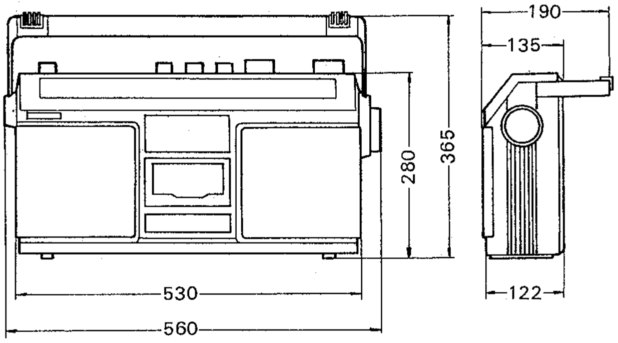
PIONEER®

3609

1. SPECIFICATIONS

Max. output power	3W + 3W/FTC (3.2Ω, 100 ~ 15,000 Hz, 10% THD.)
Speaker	16 cm (6-1/4 in.) Woofer, 4.2 cm (1-5/8 in.) Tweeter (2 way system)
Wow and flutter	0.08% (WRMS) With anti-rolling system
Frequency response	50 ~ 12,000 Hz
Input	AUX L/R, EXT MIC L/R (with terminal for remote control use), MIX MIC (with terminal for remote control use), EXT FM ANT
Output	LINE OUT L/R, EXT SP L/R, headphone
Subfunction	One side repeat, song repeat, programmable repeat, tape counter memory, song finder, editor, one touch recording, loudness switch
Indicator	Play (Green LED), FF (Red LED), REW (Red LED), REC (Red LED), song finder (Red LED), auto repeat (Green LED), memory (Red LED), FM Stereo (Red LED), tuning (Green LED), battery check (Red LED)
Frequency range	FM: 88 ~ 108 MHz AM: 525 ~ 1,605 kHz
Power source	120V AC 60 Hz, 13.5V DC (Nine 1.5V "D" batteries), EXT 12V DC
Power consumption	16W
Dimensions (W × H × D)	530 × 280 × 135 mm (20-7/8 × 11 × 5-3/8 in.)
Weight	6.5 kg (14.3 lbs) without batteries

Note:
Specifications and the design are subject to possible modification without notice due to improvements.



(mm)

2. BLOCK DIAGRAM

● Tuner Section

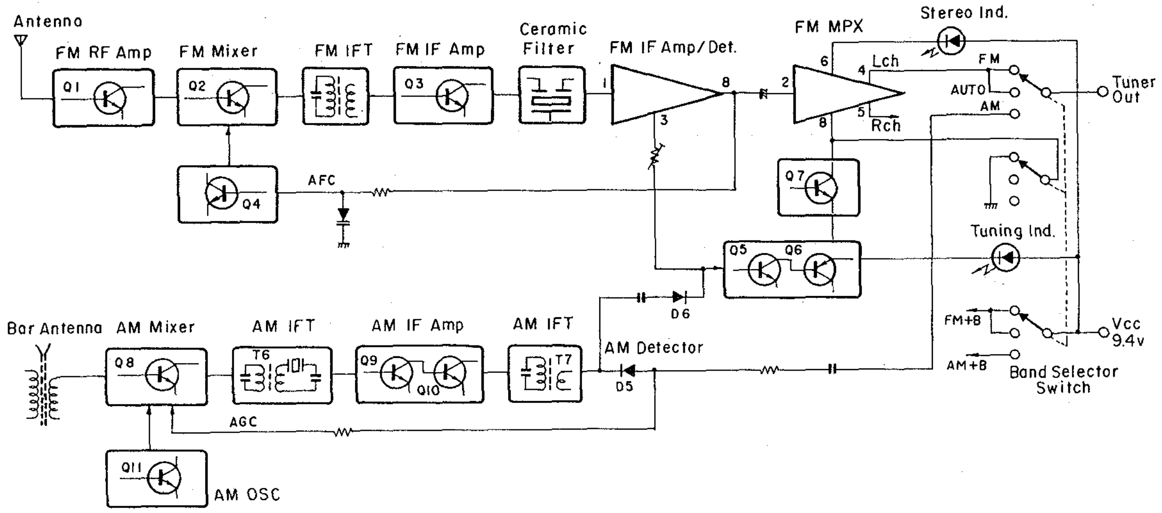

Antenna
FM RF Amp
Q1
FM Mixer
Q2
FM IFT
FM IF Amp
Q3
Ceramic Filter
FM IF Amp/Det.
FM MPX
Stereo Ind.
Lch
Rch
FM
AUTO
AM
Tuner Out
Q4
AFC
Q7
Tuning Ind.
Q5
Q6
D6
Vcc 9.4v
FM+B
AM+B
Band Selector Switch
Bar Antenna
AM Mixer
Q8
AM IFT
T6
AM IF Amp
Q9
Q10
AM IFT
T7
AM Detector
D5
AGC
Q11
AM OSC

Fig. 1

● Playback Mode

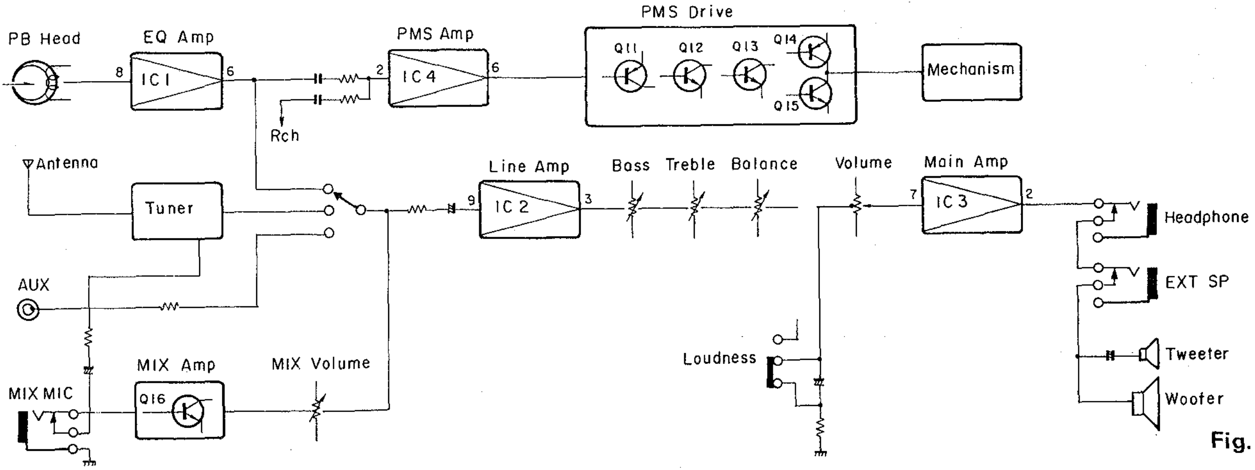

PB Head
EQ Amp
IC1
PMS Amp
IC4
PMS Drive
Q11
Q12
Q13
Q14
Q15
Mechanism
Rch
Antenna
Tuner
Line Amp
IC 2
Bass
Treble
Balance
Volume
Main Amp
IC 3
Headphone
EXT SP
AUX
Loudness
Tweeter
Woofer
MIX MIC
MIX Amp
Q16
MIX Volume

Fig. 2

● Record Mode

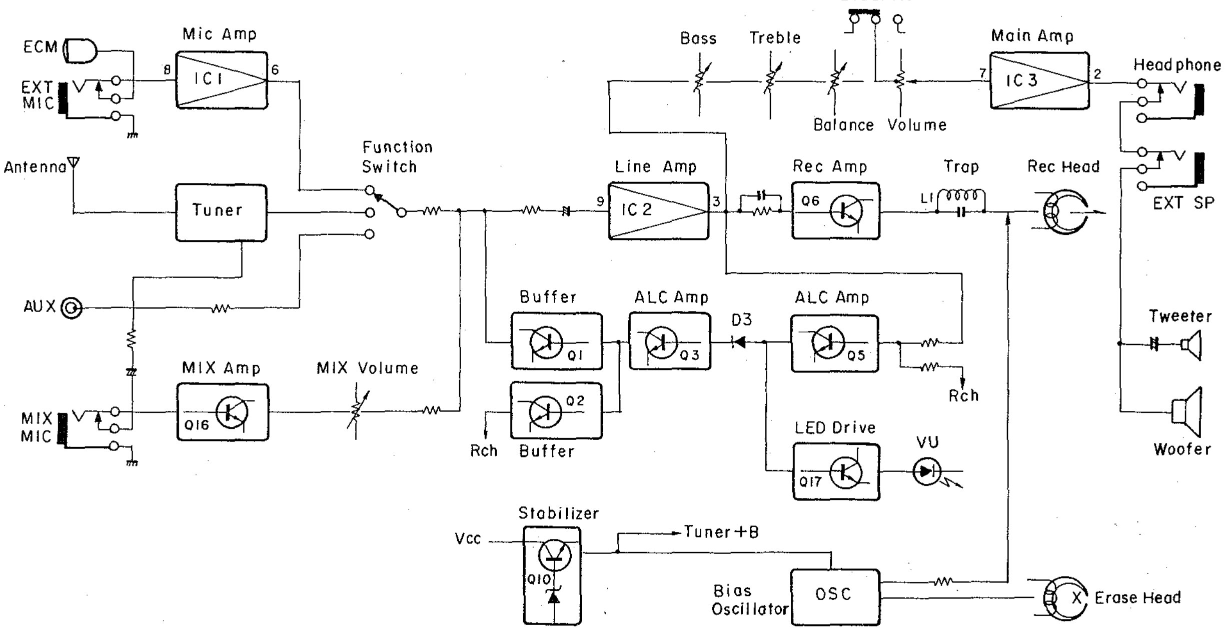

ECM
EXT MIC
Mic Amp
IC1
Loudness
Bass
Treble
Balance
Volume
Main Amp
IC 3
Head phone
EXT SP
Antenna
Function Switch
Tuner
Line Amp
IC 2
Rec Amp
Q6
Trap
L1
Rec Head
AUX
Buffer
Q1
ALC Amp
Q3
D3
ALC Amp
Q5
Rch
Tweeter
MIX MIC
MIX Amp
Q16
MIX Volume
Q2
Buffer
Rch
LED Drive
Q17
VU
Woofer
Stabilizer
Vcc
Q10
Tuner+B
Bias Oscillator
OSC
Erase Head

Fig. 3

3. DISASSEMBLY

● Removing the Rear Case

1. Remove the batteries and check that the AC cord is not connected.
2. Unscrew the nine screws which hold the rear case. The bottom of the rear case may be slid, and so to remove it, push down from above. (Fig. 4)

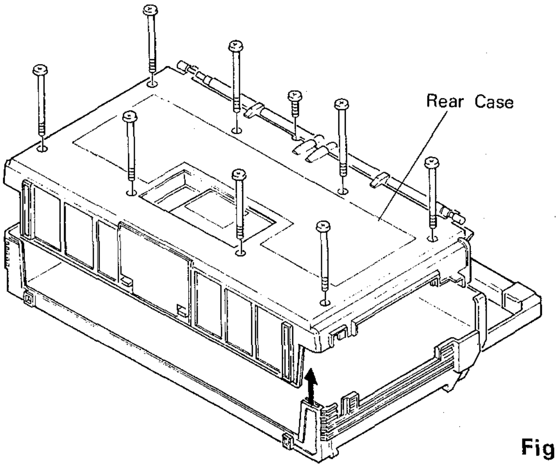


Fig. 4

● How to Remove Cassette Holder

1. Press the Stop/Eject knob to open the cassette holder.
2. Apply force in the direction of the arrow. (Fig. 5) And then remove the cassette holder.
3. To install the cassette holder, insert it and apply force in the direction of the arrow. It will then be locked firmly in position. (Fig. 6)

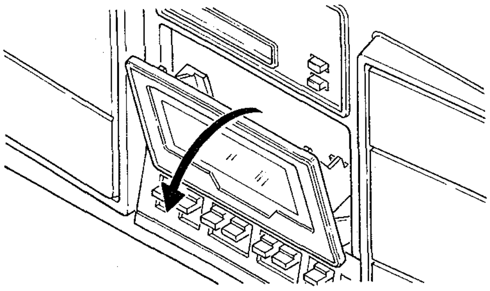


Fig. 5

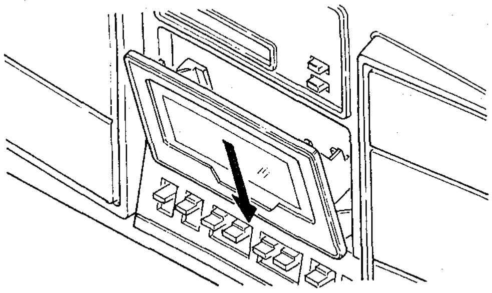


Fig. 6

● Chassis Assembly Removal

1. Remove the knobs from the top panel.
2. Remove the tuning knob by using a screwdriver from the back of the set.
3. Remove the lever knob of Chassis Assembly by pushing it till the interior side of the panel.

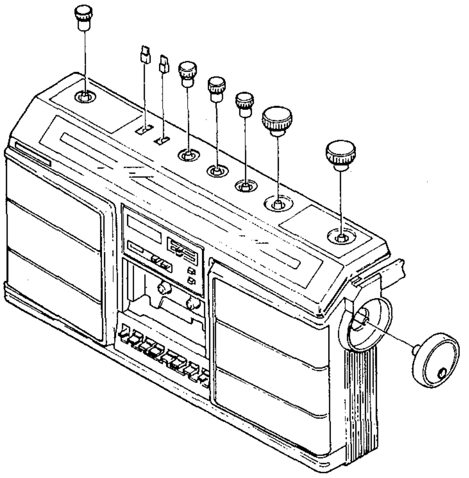


Fig. 7

● Removing the Amp Unit

1. The amp unit can be removed when the eight screws holding the chassis and the three nuts holding the volume control are removed.

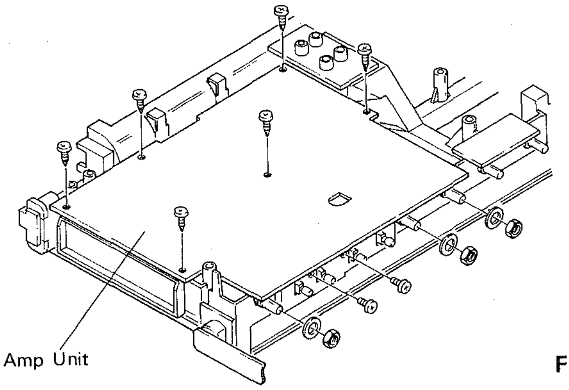


Fig. 8

● Removing the Tuner Unit

1. Remove the screws anchoring the variable condenser and the pulley.
2. Remove the nut holding the switch.
3. Unscrew the five screws holding the tuner unit and the board can then be removed.
   When reassembling the circuit board, first adjust for the cutout in the center of the pulley and the projection on the variable condenser to be aligned and then reassemble. If these screws are too loose, this may cause the meter pointer to deviate.

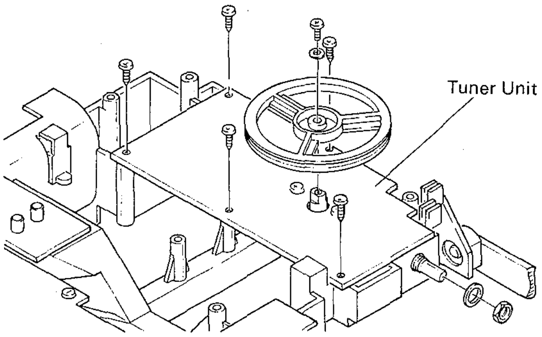


Fig. 9

● Removing the Cassette Mechanism

1. Unscrew the four screws holding the cassette mechanism, pull it right up and then remove.

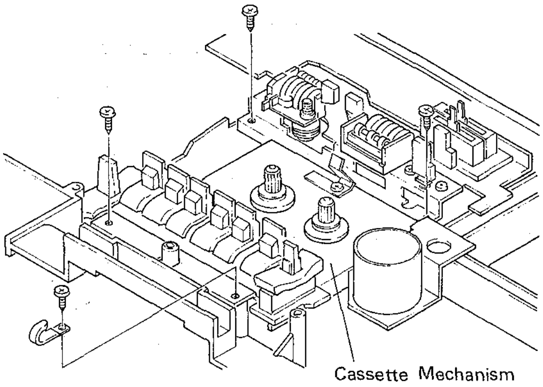


Fig. 10

4. DIAL STRINGING

1. Position the dial thread with reference to the figure. (Proceed in numerical order.)
2. When the thread has been positioned or when the variable condenser of the tuner circuit board or the pulley has been replaced, the cutout of the pulley and the projection of the variable condenser may be thrown out of alignment. In cases like this, first align the parts properly and then tighten the mounting screw. If the screw is too loose, the meter pointer may deviate.

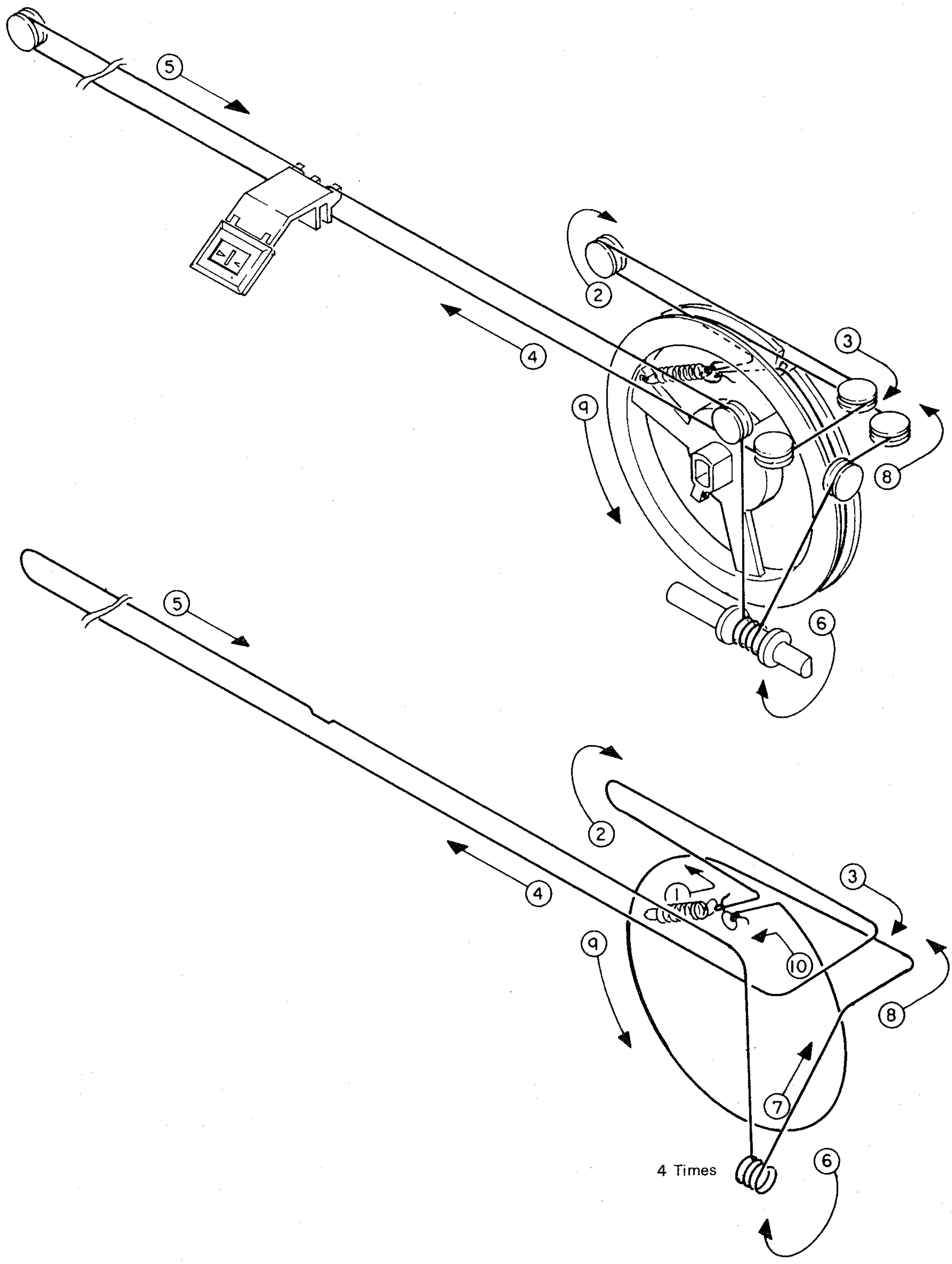


Fig. 11

5. ADJUSTMENT

5.1 REC BIAS ADJUSTMENT

● Connection Diagram

Switch position

Function switch .... AUX

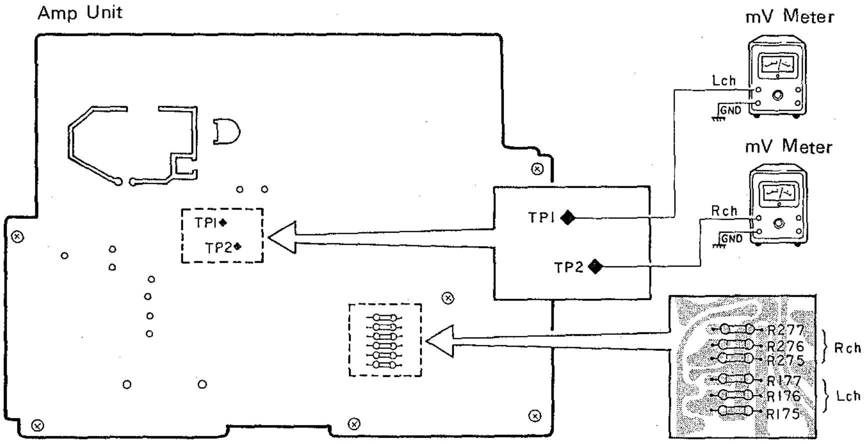

Amp Unit
mV Meter
Lch
GND
mV Meter
Rch
GND
TP1
TP2
TP1
TP2
R277
R276
R275
Rch
R177
R176
R175
Lch

Fig. 12

● To Adjust

1. Set the unit to the recording mode. The mV meter pointer is set to deflect to 3.8 mV ±1 dB but if the actual deflection is lower, connect R176, 177 (Lch) and R276, 277 (Rch) in parallel.
   If the mV meter reads higher, disconnect R175 and R275.

5.2 BIAS TRAP ADJUSTMENT

● Connection Diagram

Switch positions

Function switch .... AUX

BFC switch... 1 ⇄ 2

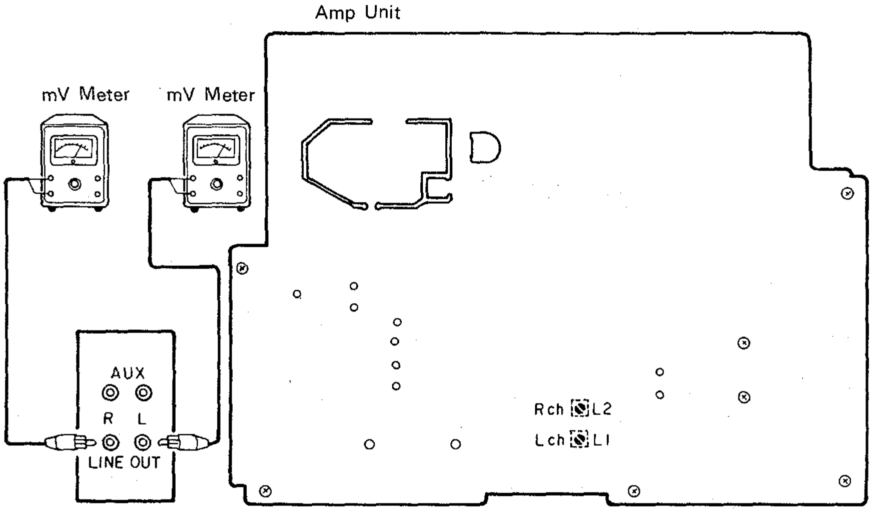

Amp Unit
mV Meter
mV Meter
AUX
R
L
LINE OUT
Rch L2
Lch L1

Fig. 13

● To Adjust

1. Select the recording mode. Set the BFC switch to Position 1, turn L1 (Lch) and L2 (Rch), and adjust until the mV meter reads minimum.
2. Set the BFC switch to Position 2, and adjust in the same way as mentioned in Step (1).
3. Repeat Steps (1) and (2) a few times until the mV meter reads the same whichever position, 1 or 2, the mV meter is at.

5.3 AM IF ADJUSTMENT

● Connection Diagram

Switch positions

Function switch	RADIO
Band selector switch	AM

Generator Scope

Sweep center frequency	455 kHz
Input gain	0.3 Vp-p/cm

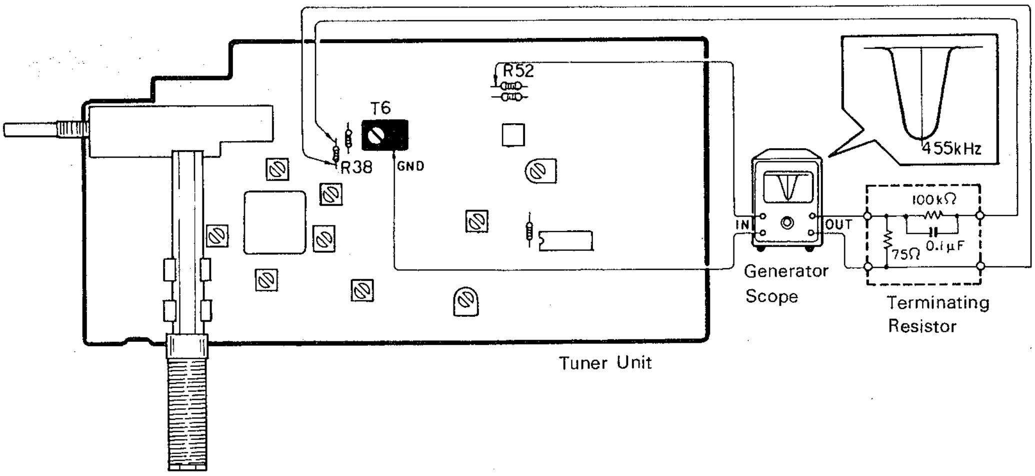

R52
T6
R38
GND
455kHz
IN
OUT
100kΩ
75Ω
0.1μF
Generator Scope
Terminating Resistor
Tuner Unit

Fig. 14

● To Adjust

1. Set the input of the Generator Scope to the range within which the U curve can be verified and move the T6 until the U curve is adjusted to its maximum amplitude and optimum symmetry.

5.4 AM TRACKING ADJUSTMENT

● Connection Diagram

Switch positions

Function switch	RADIO
Band selector switch	AM

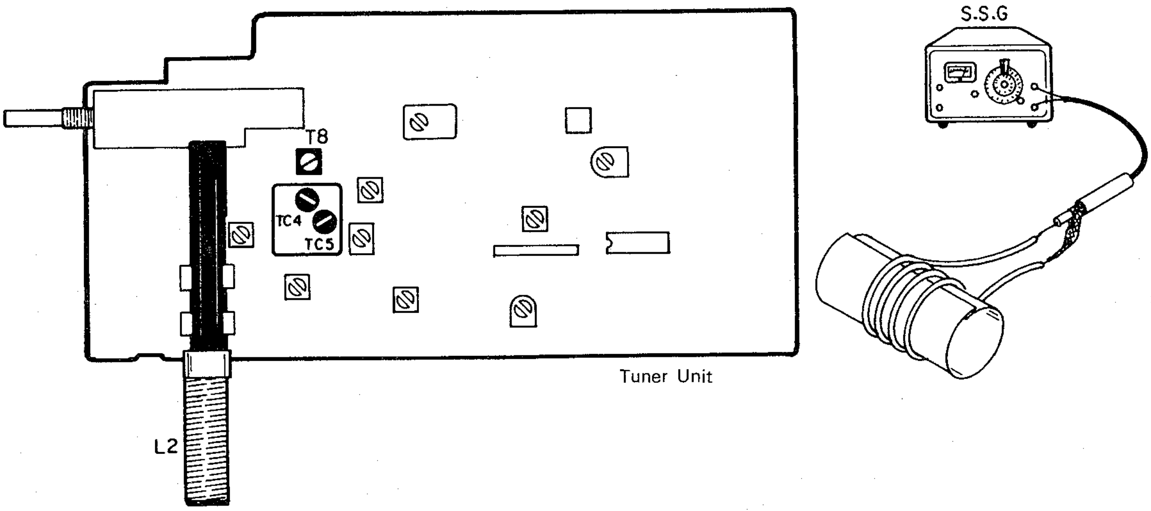

S.S.G
T8
TC4
TC5
L2
Tuner Unit

Fig. 15

● To Adjust

Frequency of FM SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 515 kHz (400 Hz, 30% modulation) output 60 dB/m.	Maximum (turn the tuning knob counterclockwise.)	T8	515 kHz can be received.
2. 1,650 kHz (400 Hz, 30% modulation) output 60 dB/m.	Minimum (turn the tuning knob clockwise.)	TC5	1,650 kHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 515 ~ 1,650 kHz are received.			
4. 600 kHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 600 kHz.	L2 (Coil of bar antenna)	Maximum output.
5. 1,400 kHz (400 Hz, 30% modulation) output 40 ~ 50 dB/m.	Tuned to 1,400 kHz.	TC4	Maximum output.
6. Repeat (4) and (5) alternately and confirm that they are as specified.			

Note: After adjusting L2 (Coil of bar antenna), melt electro wax with soldering iron and fix it in position.

5.5 FM IF ADJUSTMENT

● Connection Diagram

Switch positions

Function switch ....RADIO

Band selector switch .... FM

Generator Scope

Sweep center frequency .... 10.7 MHz

Input gain .... 0.3 Vp-p/cm

Marker ....OFF or minimum

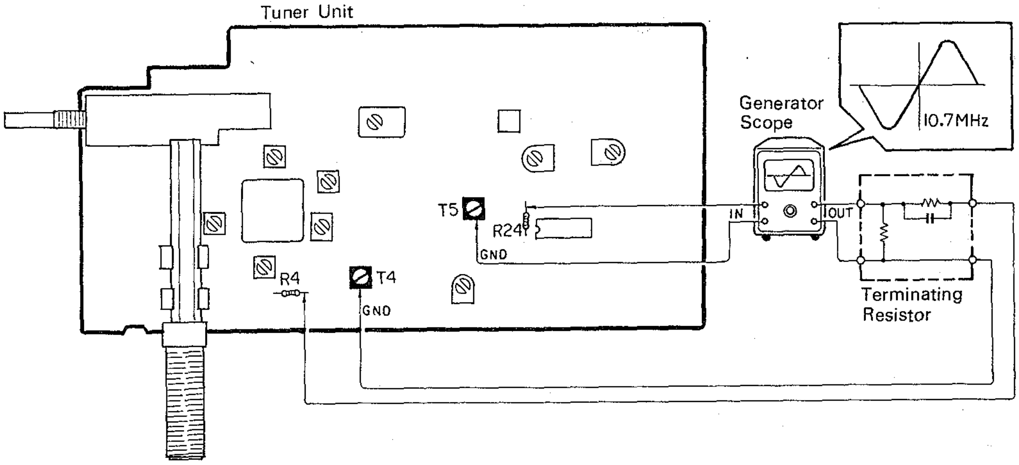


Fig. 16

● To Adjust

1. Apply an output of about 70 dB (μV) from the Generator Scope, adjust T4, T5 and adjust so that the S curve becomes vertically symmetrical and optimum linearity is obtained.

5.6 FM TRACKING ADJUSTMENT

● Connection Diagram

Switch positions

Function switch ....RADIO
Band selector switch.. FM

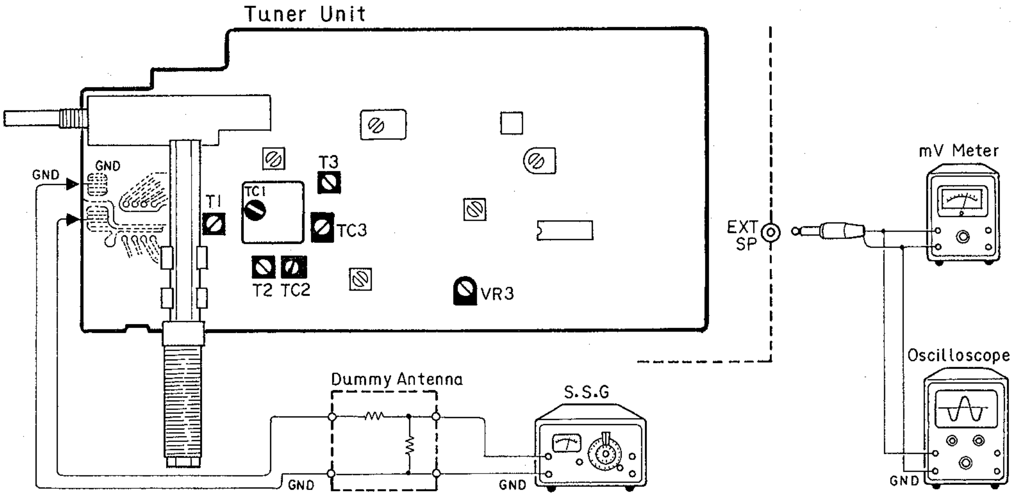

Tuner Unit
GND
GND
T1
TC1
T3
TC3
T2 TC2
VR3
EXT SP
mV Meter
Oscilloscope
Dummy Antenna
S.S.G
GND
GND
GND

Fig. 17

● To Adjust

Frequency of FM SSG	Variable Condenser Position	Adjusting Point	Remarks
1. 87 MHz (400 Hz, 75 kHz deviation) output 30 dB (μV).	Maximum (turn the tuning knob counterclockwise.)	T3	87 MHz can be received.
2. 109 MHz (400 Hz, 75 kHz deviation) output 30 dB (μV).	Minimum (turn the tuning knob clockwise.)	TC3	109 MHz can be received.
3. Repeat (1) and (2) alternately and adjust so that 87 ~ 109 MHz are received.			
4. 90 MHz (400 Hz, 75 kHz deviation) output 10 ~ 20 dB (μV).	Tuned to 90 MHz.	T1, T2	Maximum output.
5. 106 MHz (400 Hz, 75 kHz deviation) output 10 ~ 20 dB (μV).	Tuned to 106 MHz.	TC1, TC2	Maximum output.
6. Repeat (4) and (5) alternately and adjust until tracking error disappears.			
7. 82 MHz (400 Hz, 75 kHz deviation) output 17 dB (μV).	Tune to 82 MHz.	VR3	Tuning LED must light.

5.7 FM MPX ADJUSTMENT

● Connection Diagram

Switch positions

function switch ....RADIO
Band selector switch...FM AUTO

Stereo modulator

Modulation frequency .... 1 kHz
Modulation 100%
Pilot .... 7.5 kHz
Main .... 67.5 kHz

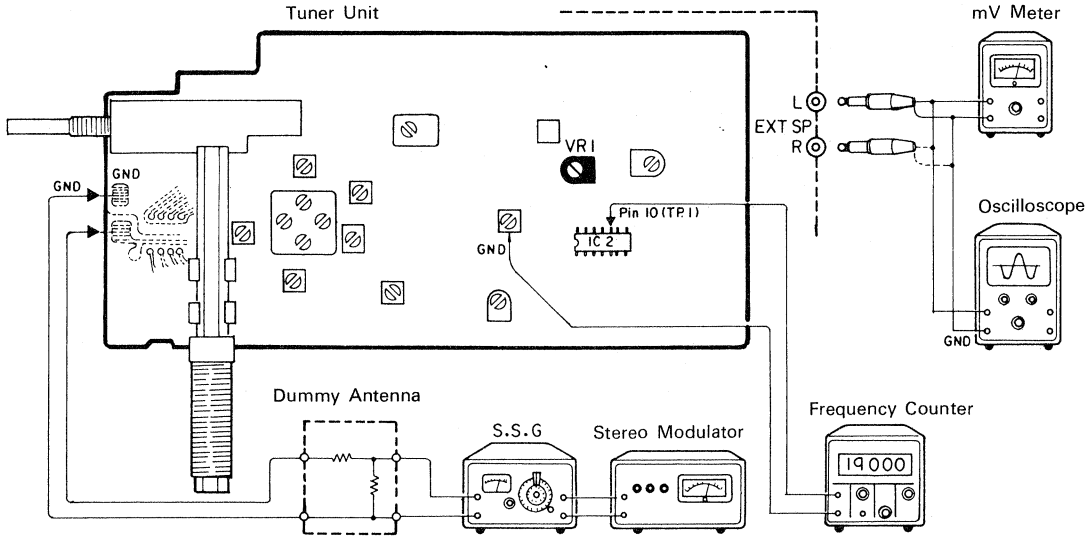
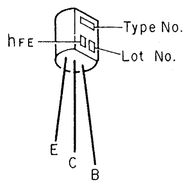

Tuner Unit
mV Meter
L
EXT SP
R
VR1
GND
GND
Pin 10 (TP.1)
IC 2
GND
Oscilloscope
GND
Dummy Antenna
S.S.G
Stereo Modulator
Frequency Counter
19000

Fig. 18

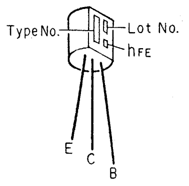
● To Adjust

1. Apply an 98 MHz 10 dB signal from the FM SSG, and rotate the tunig knob to tune into 98 MHz.
2. Set the FM SSG output to 60 dB and set the modulation to OFF.
3. Adjust VR1 so that the frequency counter indicates 19 kHz ±20 Hz.

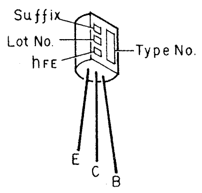
● IC's and Transistors


hFE
Type No.
Lot No.
E
C
B

2SC1317


Type No.
Lot No.
hFE
E
C
B

2SC945
2SA733
2SC1674
2SC1675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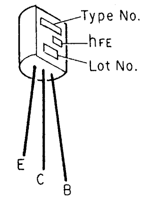
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hFE
Lot No.
E
C
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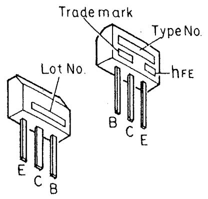
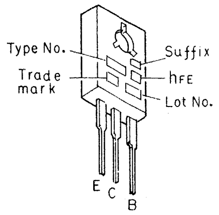
2SD468

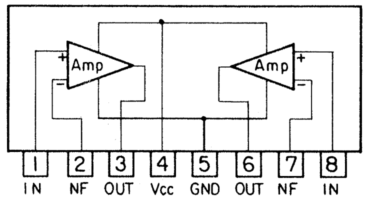

Trademark
Type No.
Lot No.
hFE
B
C
E
E
C
B

2SC460


Type No.
Trade mark
Suffix
hFE
Lot No.
E
C
B

2SC2209

M51521L


Amp
Amp
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3
4
5
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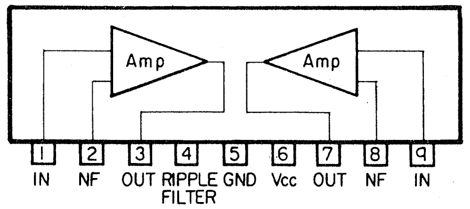
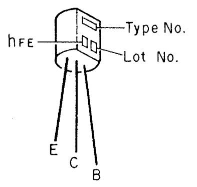
7
8
IN
NF
OUT
Vcc
GND
OUT
NF
IN

AN7311


Amp
Amp
1
2
3
4
5
6
7
8
9
IN
NF
OUT
RIPPLE FILTER
GND
Vcc
OUT
NF
IN

- **IC's and Transistors**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B

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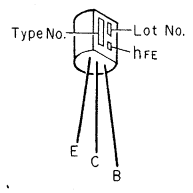
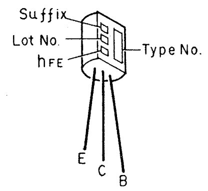

Type No.
Lot No.
hFE
E
C
B

2SC945
2SA733
2SC1674
2SC1675


Suffix
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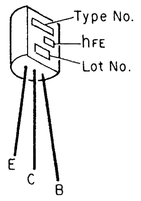
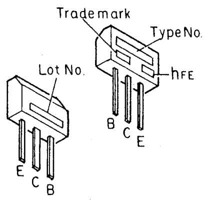
Type No.
E
C
B

2SC2320L


Type No.
hFE
Lot No.
E
C
B

2SD468


Trademark
Type No.
Lot No.
hFE
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C
E
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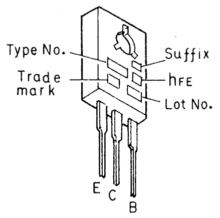
C
B

2SC460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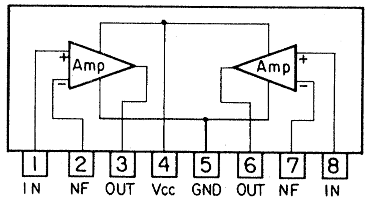
M51521L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Amp
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6
7
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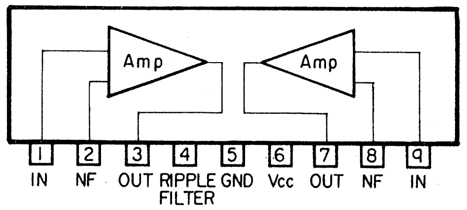
IN
NF
OUT
Vcc
GND
OUT
NF
IN

AN7311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Amp
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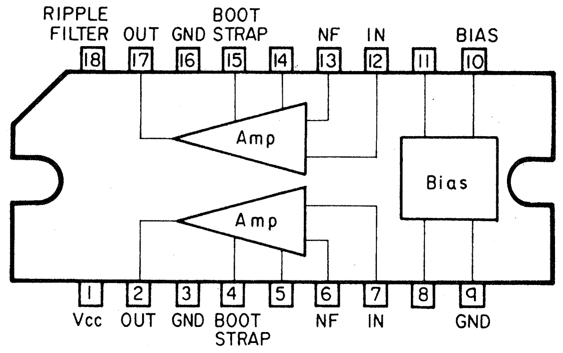
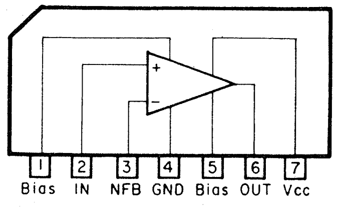
RIPPLE FILTER
GND
Vcc
OUT
NF
IN

AN7146M


RIPPLE FILTER
OUT
GND
BOOT STRAP
NF
IN
BIAS
18
17
16
15
14
13
12
11
10
Amp
Amp
Bias
1
2
3
4
5
6
7
8
9
Vcc
OUT
GND
BOOT STRAP
NF
IN
GND

µPC592H2-E


+
−
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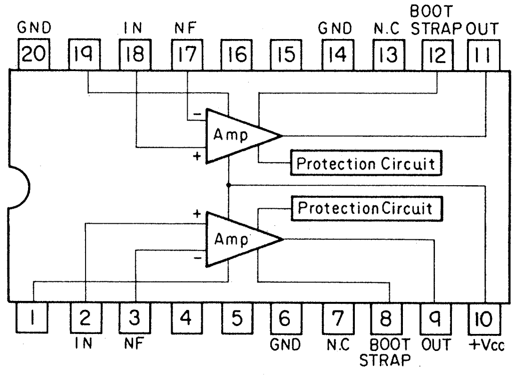
3
4
5
6
7
Bias
IN
NFB
GND
Bias
OUT
Vcc

TA7303P-C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GND
N.C
BOOT STRAP
OUT
20
19
18
17
16
15
14
13
12
11
Amp
Protection Circuit
Protection Circuit
Amp
1
2
3
4
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8
9
10
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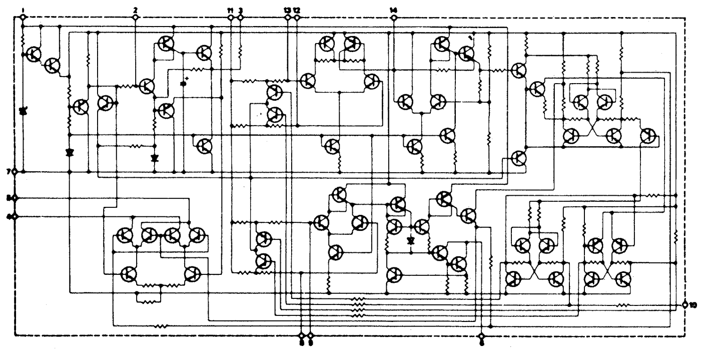
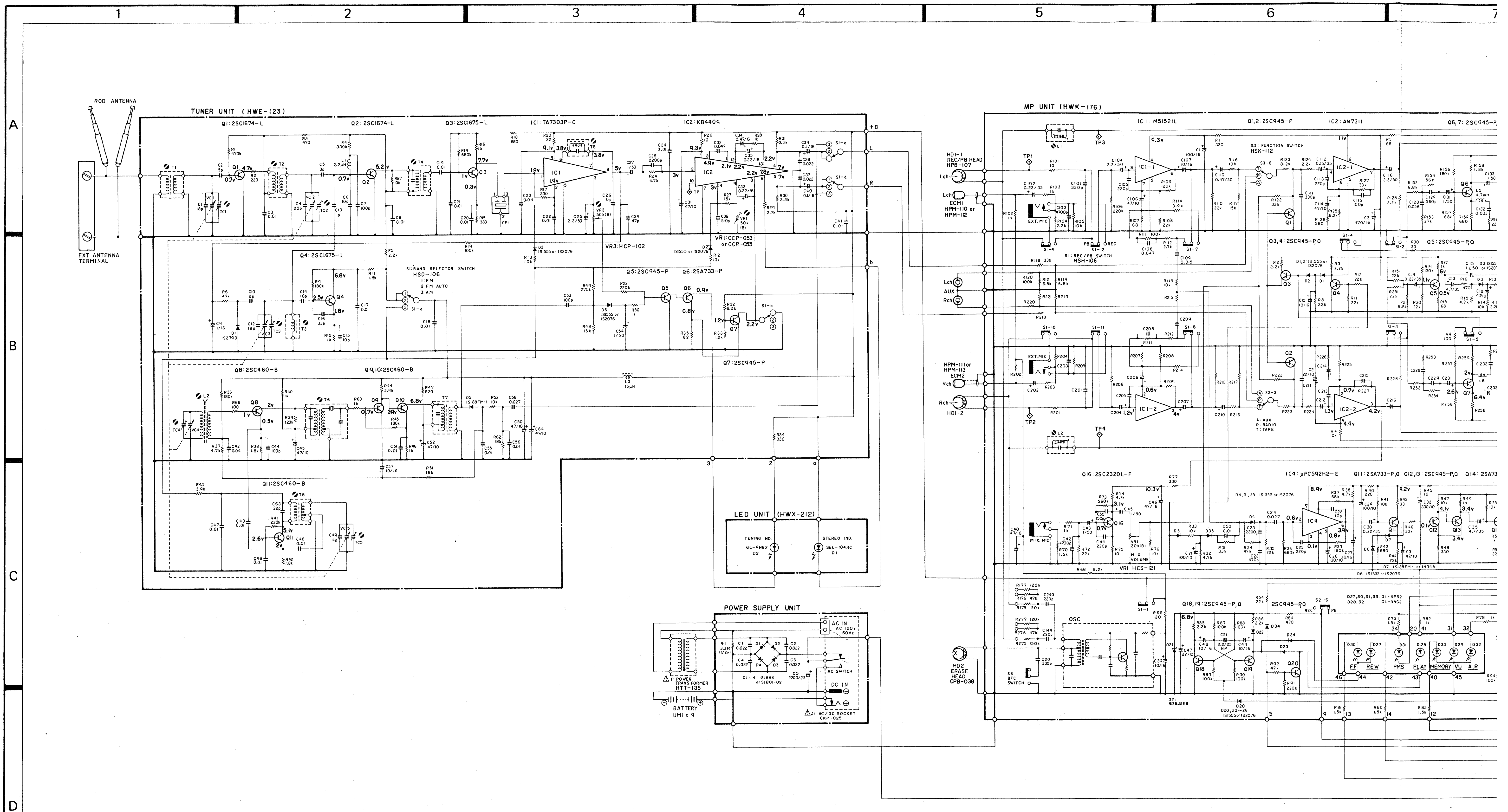
NF
GND
N.C
BOOT STRAP
OUT
+Vcc

KB4409



6. SCHEMATIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
ROD ANTENNA
EXT ANTENNA TERMINAL
TUNER UNIT (HWE-123)
Q1: 2SC1674-L
Q2: 2SC1674-L
Q3: 2SC1675-L
IC1: TA7303P-C
IC2: KB4409
Q4: 2SC1675-L
S1: BAND SELECTOR SWITCH HSD-106
1: FM
2: FM AUTO
3: AM
VR3: HCP-102
Q5: 2SC945-P
Q6: 2SA733-P
VR1: CCP-053 or CCP-055
Q7: 2SC945-P
Q8: 2SC460-B
Q9,10: 2SC460-B
Q11: 2SC460-B
LED UNIT (HWX-212)
TUNING IND. GL-9NG2 D2
STEREO IND. SEL-104RC D1
POWER SUPPLY UNIT
POWER TRANS FORMER HTT-135
BATTERY UM1 x 9
D1~4: 1S1886 or S1B01-02
AC IN AC 120v 60Hz
AC SWITCH
DC IN
J1 AC/DC SOCKET CKP-025
MP UNIT (HWK-176)
IC1: M5152IL
Q1,2: 2SC945-P
IC2: AN7311
Q6,7: 2SC945-P
HD1-1 REC/PB HEAD HPB-107
ECM1 HPM-110 or HPM-112
EXT. MIC
S1: REC/PB SWITCH HSH-106
S3: FUNCTION SWITCH HSK-112
Q3,4: 2SC945-P,Q
Q5: 2SC945-P,Q
HPM-111 or HPM-113 ECM2
HD1-2
A: AUX
R: RADIO
T: TAPE
TP1
TP2
TP3
TP4
Q16: 2SC2320L-F
IC4: μPC592H2-E
Q11: 2SA733-P,Q
Q12,13: 2SC945-P,Q
MIX. MIC
VR1: HCS-121
MIX VOLUME
HD2 ERASE HEAD CPB-038
S6 BFC SWITCH
OSC
Q18,19: 2SC945-P,Q
2SC945-P,Q
D27,30,31,33: GL-9PR2
D28,32: GL-9NG2
FF
REW
PMS
PLAY
MEMORY
VU
A.R
D21 RD6.8EB
D20,22~26 1S1555 or 1S2076

Note:
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

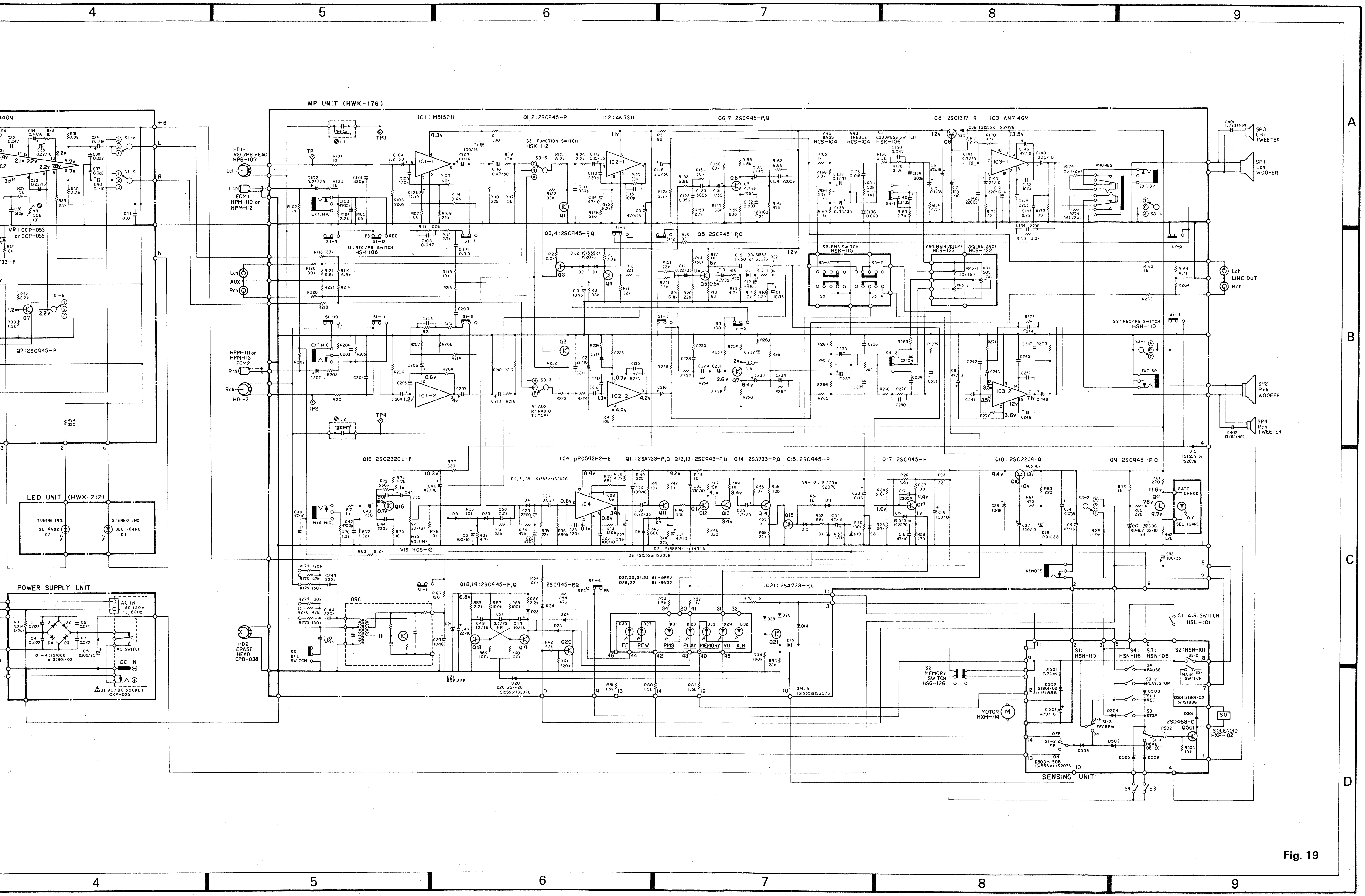
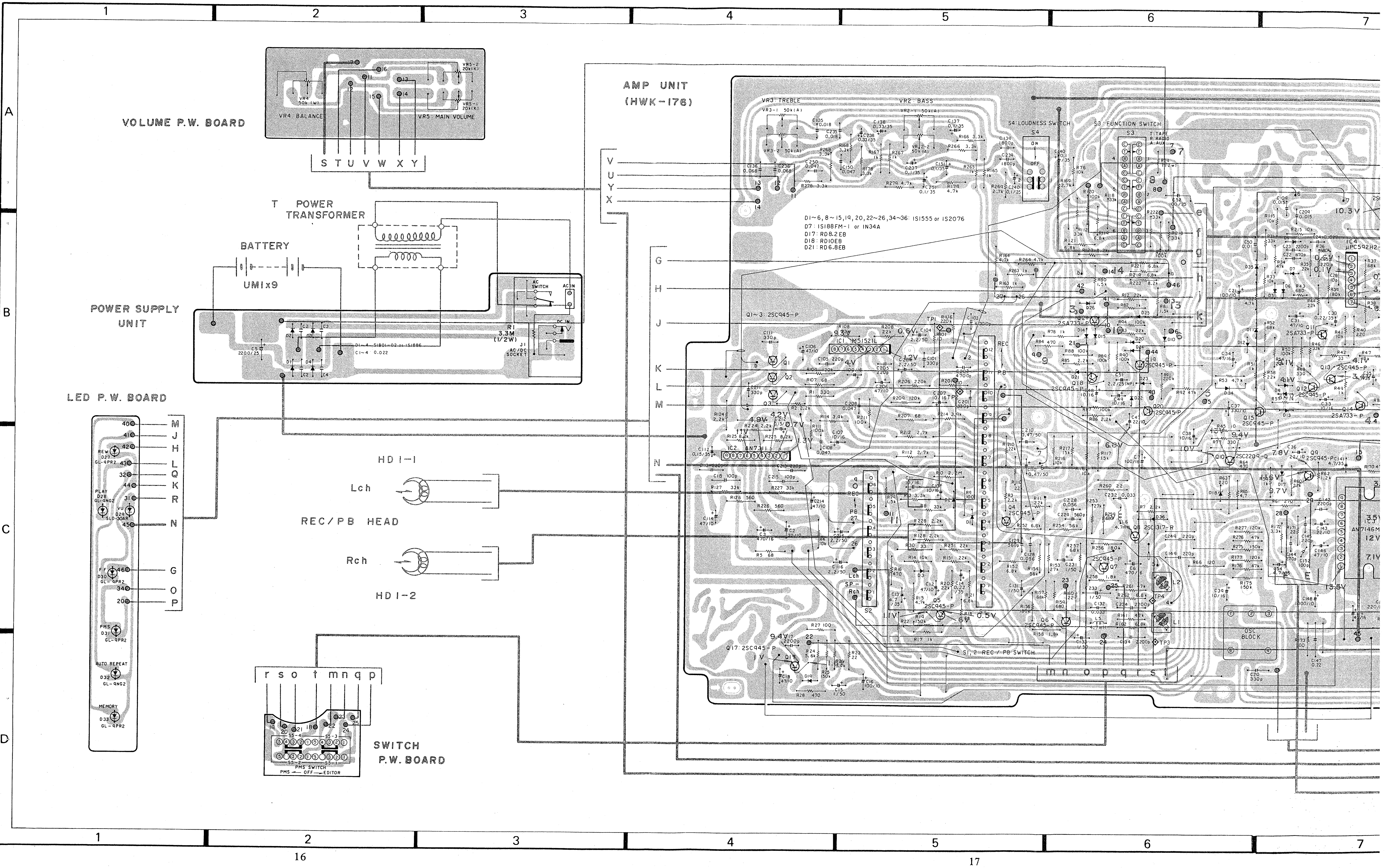
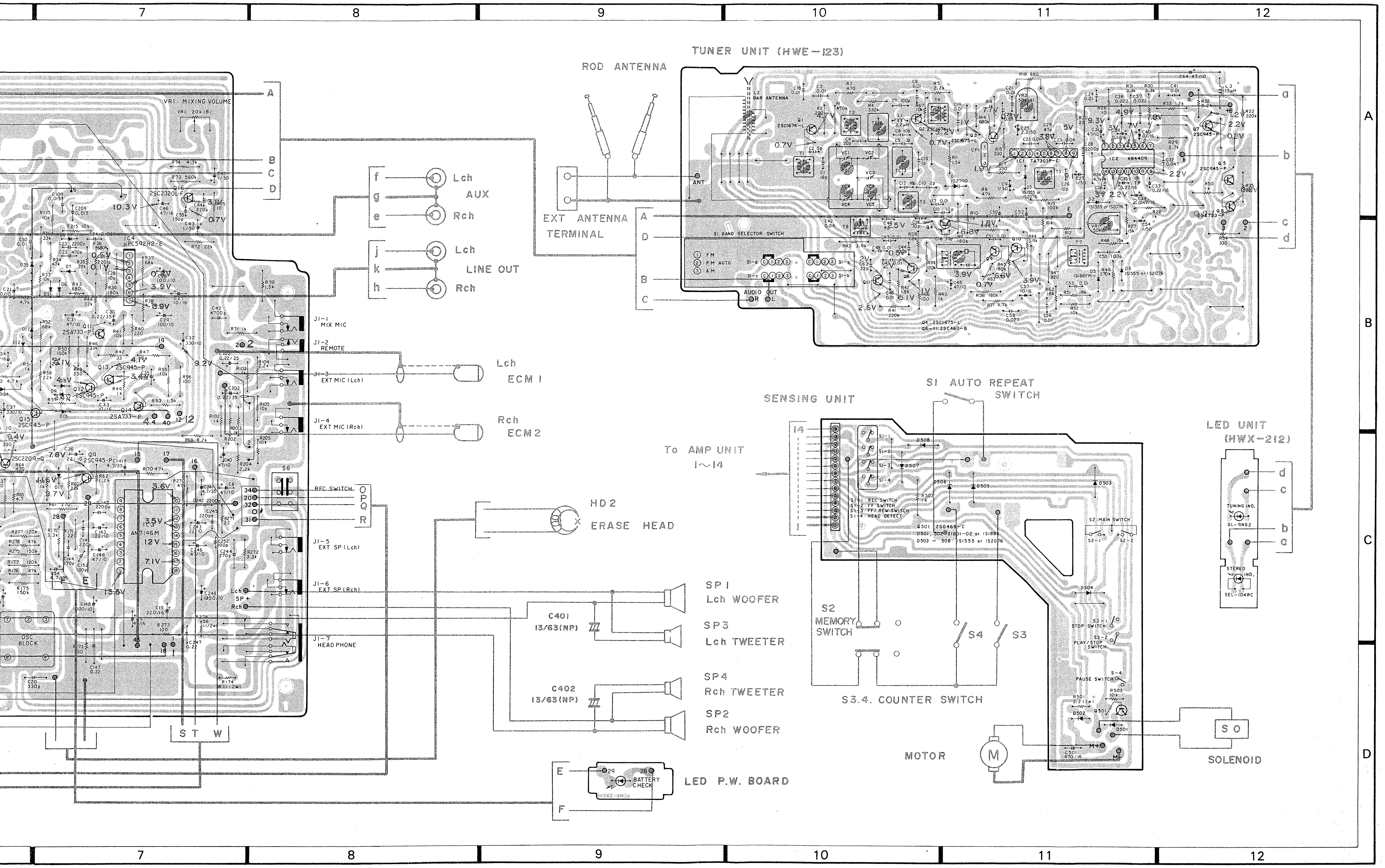

4
5
6
7
8
9
A
B
C
D
MP UNIT (HWK-176)
IC1 : M5152IL
Q1,2 : 2SC945-P
IC2 : AN7311
Q6,7 : 2SC945-P,Q
Q8 : 2SC1317-R
IC3 : AN7146M
D36 1S1555 or 1S2076
S3 : FUNCTION SWITCH HSK-112
VR2 BASS HCS-104
VR3 TREBLE HCS-104
S4 LOUDNESS SWITCH HSK-106
HD1-1 REC/PB HEAD HPB-107
ECM1 HPM-110 or HPM-112
EXT. MIC
S1 : REC/PB SWITCH HSH-106
Q3,4 : 2SC945-P,Q
Q5 : 2SC945-P,Q
S5 : PMS SWITCH HSK-115
VR4 : MAIN VOLUME HCS-123
VR5 : BALANCE HCS-122
PHONES
EXT. SP.
SP3 Lch TWEETER
SP1 Lch WOOFER
C401 13/63(NP)
Lch
LINE OUT
Rch
AUX
S2 : REC/PB SWITCH HSH-110
HPM-111 or HPM-113 ECM2
HD1-2
A : AUX
R : RADIO
T : TAPE
TP1
TP2
TP3
TP4
L1
L2
SP2 Rch WOOFER
SP4 Rch TWEETER
C402 13/63(NP)
Q16 : 2SC2320L-F
IC4 : µPC592H2-E
Q11 : 2SA733-P,Q
Q12,13 : 2SC945-P,Q
Q14 : 2SA733-P,Q
Q15 : 2SC945-P
Q17 : 2SC945-P
Q10 : 2SC2209-Q
Q9 : 2SC945-P,Q
D4,5,35 1S1555 or 1S2076
D8~12 1S1555 or 1S2076
MIX. MIC
VR1 : HCS-121
MIX. VOLUME
D7 1S188FM-1 or 1N34A
D6 1S1555 or 1S2076
BATT. CHECK
D16 SEL-104RC
D13 1S1555 or 1S2076
LED UNIT (HWX-212)
TUNING IND. GL-9NG2 D2
STEREO IND. SEL-104RC D1
POWER SUPPLY UNIT
D1~4 : 1S1886 or S1B01-02
AC IN AC 120V 60Hz
AC SWITCH
DC IN
J1 AC/DC SOCKET CKP-025
Q18,19 : 2SC945-P,Q
2SC945-P,Q
S2-6 REC PB
D27,30,31,33 GL-9PR2
D28,32 GL-9NG2
Q21 : 2SA733-P,Q
OSC
HD2 ERASE HEAD CPB-038
S6 BFC SWITCH
FF
REW
PMS
PLAY
MEMORY
VU
A.R
D21 RD6.8EB
D20, 22~26 1S1555 or 1S2076
D14,15 1S1555 or 1S2076
REMOTE
S1 A.R. SWITCH HSL-101
S2 MEMORY SWITCH HSG-126
MOTOR HXM-114
S1 : HSN-115
S4 : HSN-116
S3 : HSN-106
S2 : HSN-101
MAIN SWITCH
S4 PAUSE
S3-2 PLAY, STOP
S1-1 REC
S3-1 STOP
S1-3 FF/REW
S1-2 FF
S1-4 HEAD DETECT
D501 : S1B01-02 or 1S1886
2SD468-C Q501
SOLENOID HXP-102
D503~508 1S1555 or 1S2076
SENSING UNIT
S4
S3
VR1 : CCP-053 or CCP-055
Q7 : 2SC945-P
VR4 MAIN VOLUME
HPM-110 or HPM-112

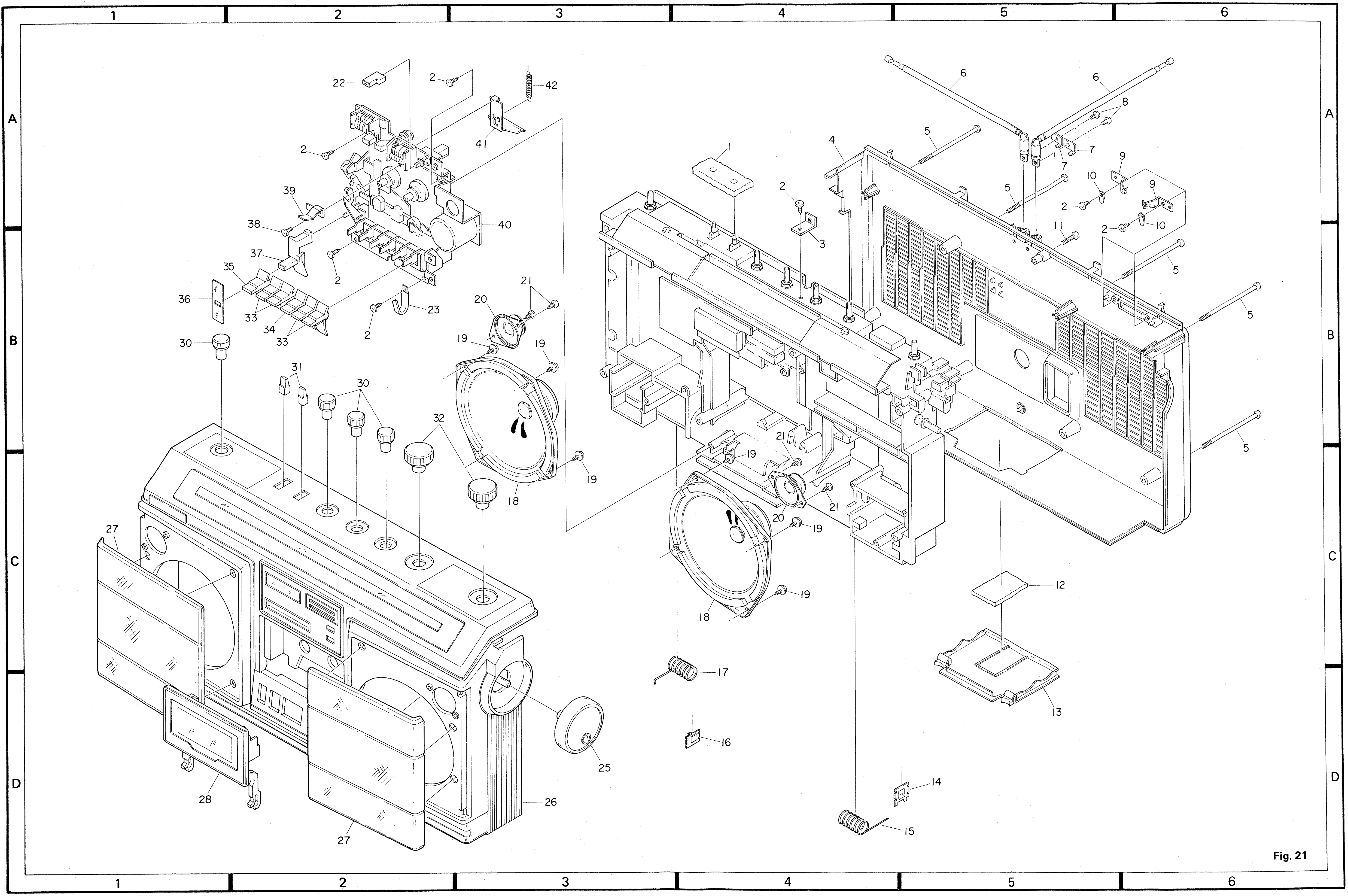
Fig. 19

7. CONNECTION DIAGRAM


VOLUME P.W. BOARD
VR4 BALANCE
VR4 50k (W)
VR5 MAIN VOLUME
VR5-2 20k(K)
VR5-1 20k(K)
S T U V W X Y
T POWER TRANSFORMER
BATTERY
UM1x9
POWER SUPPLY UNIT
AC SWITCH
AC IN
DC IN
R1 3.3M (1/2W)
J1 AC/DC SOCKET
C5 2200/25
D1~4: S1B01-02 or 1S1886
C1~4 0.022
LED P.W. BOARD
M J H L Q K R N G O P
REW D27 GL-9PR2
PLAY D28 GL-9NG2
VU D29 SLD-30AR
FF D30 GL-9PR2
PMS D31 GL-9PR2
AUTO REPEAT D32 GL-9NG2
MEMORY D33 GL-9PR2
HD1-1
Lch
REC/PB HEAD
Rch
HD1-2
SWITCH P.W. BOARD
r s o t m n q p
PMS SWITCH
PMS — OFF — EDITOR
AMP UNIT (HWK-176)
V U Y X
G H J K L M N
VR3 TREBLE
VR3-1 50k(A)
VR3-2 50k(A)
VR2 BASS
VR2-1 50k(A)
VR2-2 50k(A)
S4 LOUDNESS SWITCH
S3 FUNCTION SWITCH
T: TAPE R: RADIO A: AUX
D1~6, 8~15, 19, 20, 22~26, 34~36: 1S1555 or 1S2076
D7: 1S188FM-1 or 1N34A
D17: RD8.2EB
D18: RD10EB
D21: RD6.8EB
Q1~3: 2SC945-P
IC1 M5152L
IC2 AN7311
IC4 μPC592H2
AN7146M
Q17: 2SC945-P
S1, 2 REC/PB SWITCH
OSC BLOCK
m n o p q r s
e f g h i j k
1 2 3 4 5 6 7
A B C D


7
8
9
10
11
12
A
B
C
D
TUNER UNIT (HWE-123)
ROD ANTENNA
EXT ANTENNA TERMINAL
VR1 MIXING VOLUME
AUX
Lch
Rch
LINE OUT
J1-1 MIX MIC
J1-2 REMOTE
J1-3 EXT MIC (Lch)
J1-4 EXT MIC (Rch)
Lch ECM 1
Rch ECM 2
J1-5 EXT SP (Lch)
J1-6 EXT SP (Rch)
J1-7 HEAD PHONE
REC SWITCH
S6
HD2 ERASE HEAD
SP1 Lch WOOFER
SP3 Lch TWEETER
SP4 Rch TWEETER
SP2 Rch WOOFER
C401 13/63(NP)
C402 13/63(NP)
OSC BLOCK
AN7146M
μPC592H2-E
S T W
LED P.W. BOARD
BATTERY CHECK
E
F
SENSING UNIT
To AMP UNIT 1~14
S1 AUTO REPEAT SWITCH
S1-1 REC SWITCH
S1-2 FF SWITCH
S1-3 FF/REW SWITCH
S1-4 HEAD DETECT
S2 MAIN SWITCH
S2 MEMORY SWITCH
S4
S3
S3.4. COUNTER SWITCH
S3-1 STOP SWITCH
S3-2 PLAY/STOP SWITCH
S-4 PAUSE SWITCH
MOTOR
M
SOLENOID
SO
LED UNIT (HWX-212)
TUNING IND. GL-9NG2
STEREO IND. SEL-104RC
a
b
c
d
IC1 TA7303P-C
IC2 KB4409
L2 BAR ANTENNA
S1 BAND SELECTOR SWITCH
① FM
② FM AUTO
③ AM
AUDIO OUT R L
ANT

8. CABINET EXPLODED VIEW


1
2
3
4
5
6
A
B
C
D
22
2
42
41
2
39
38
40
37
2
35
36
33
34
33
23
2
30
31
30
32
21
20
19
19
18
19
27
28
27
26
25
1
2
3
4
5
6
6
8
7
7
9
10
9
2
2
10
11
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21
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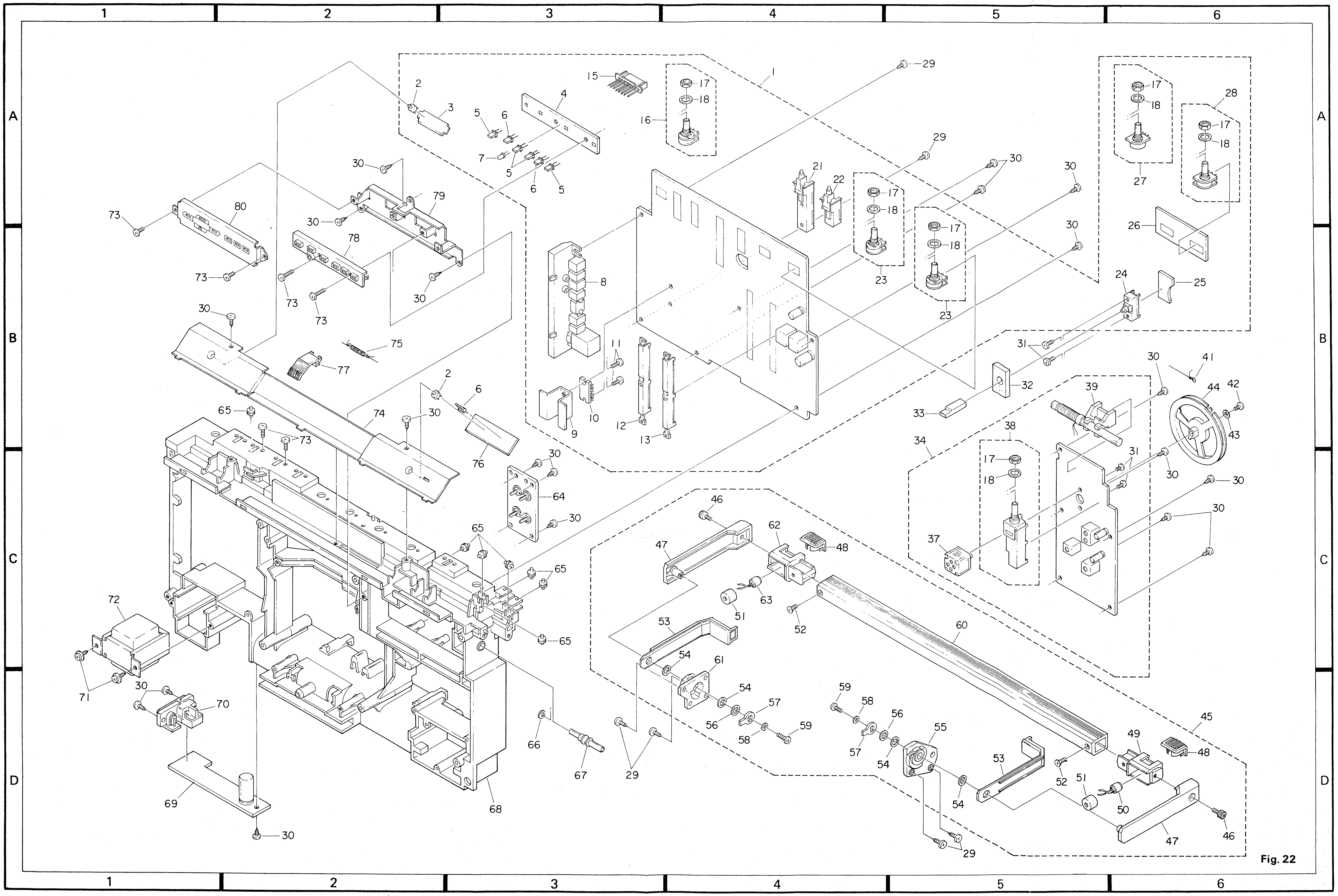
Fig. 21

9. CH

9. CHASSIS EXPLODED VIEW


1
2
3
4
5
6
A
B
C
D
29
15
1
17
18
16
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3
4
5
6
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6
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18
23
30
30
26
80
79
73
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78
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73
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24
25
30
75
77
31
32
33
2
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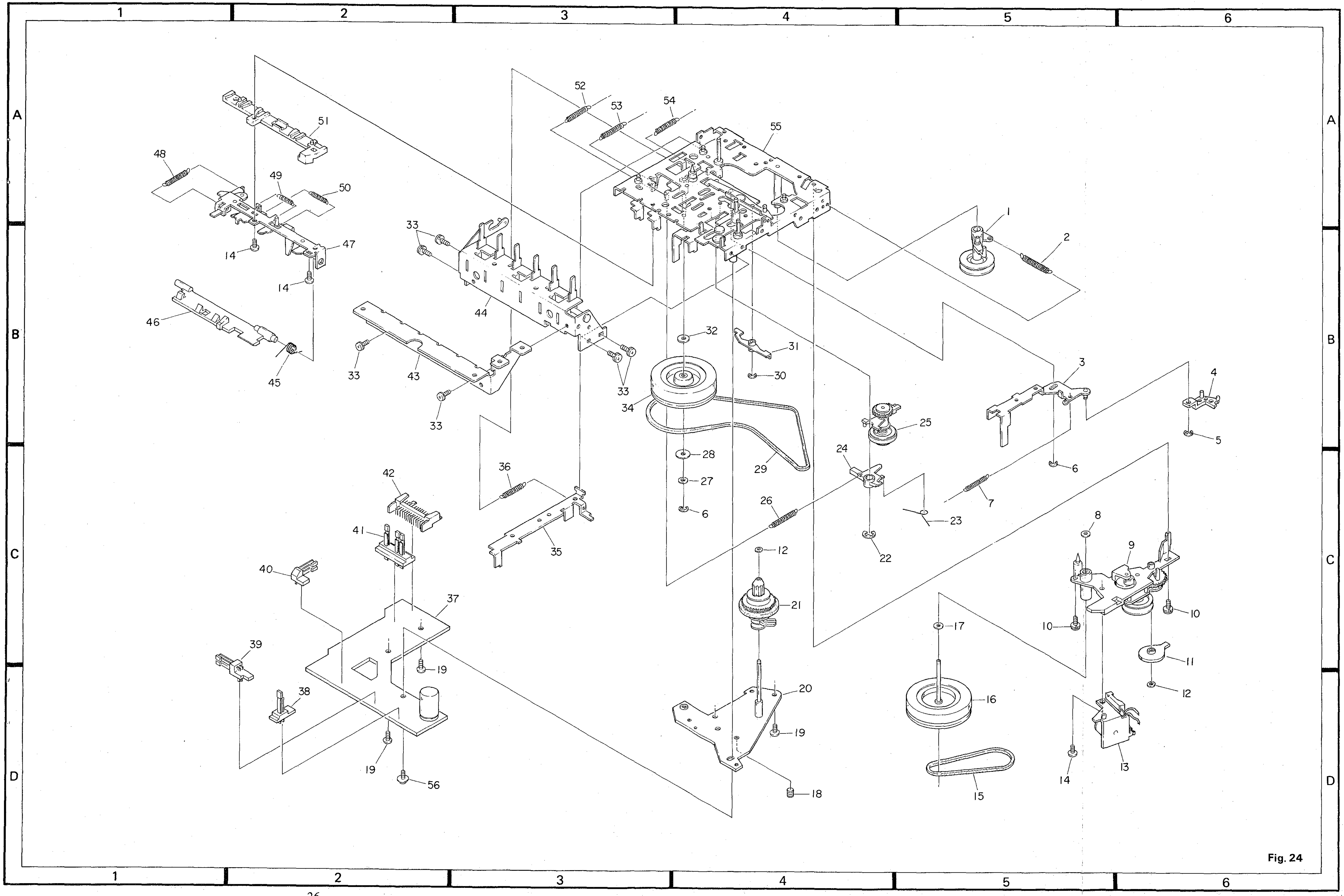
Fig. 22

11. CASSETTE MECHANISM EXPLODED VIEW (BOTTOM) SK-51


1
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6
A
B
C
D
52
53
54
55
51
48
49
50
47
14
14
46
45
33
33
33
33
33
44
43
1
2
32
31
30
34
3
4
5
25
24
28
29
27
6
26
6
7
23
22
36
35
42
41
40
37
12
21
8
9
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10
17
11
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16
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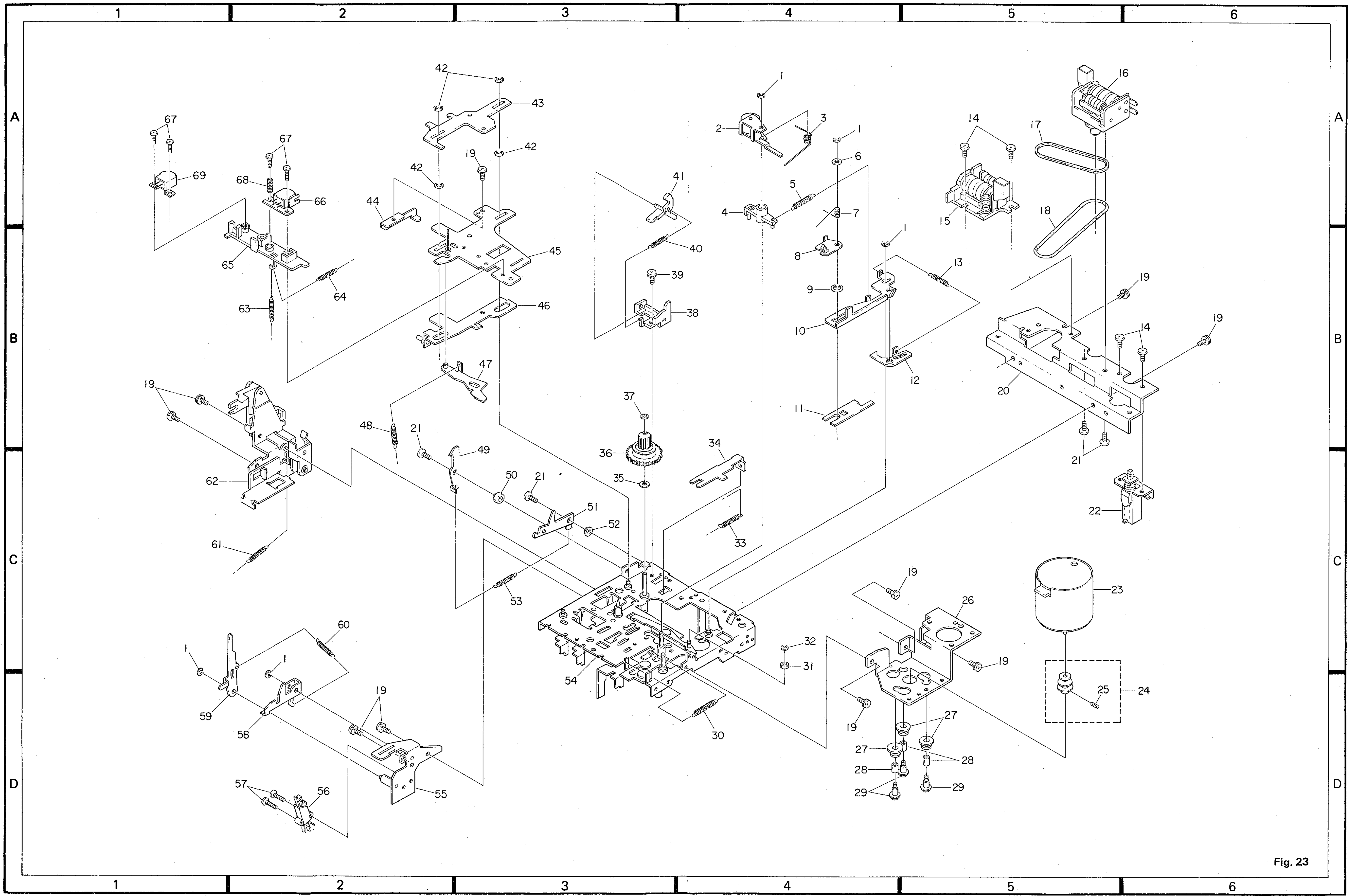
18
56
Fig. 24

Fig. 24

10. CASSETTE MECHANISM EXPLODED VIEW (TOP)


1
2
3
4
5
6
A
B
C
D
42
43
67
69
68
66
44
45
65
64
63
46
47
19
62
61
48
21
49
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51
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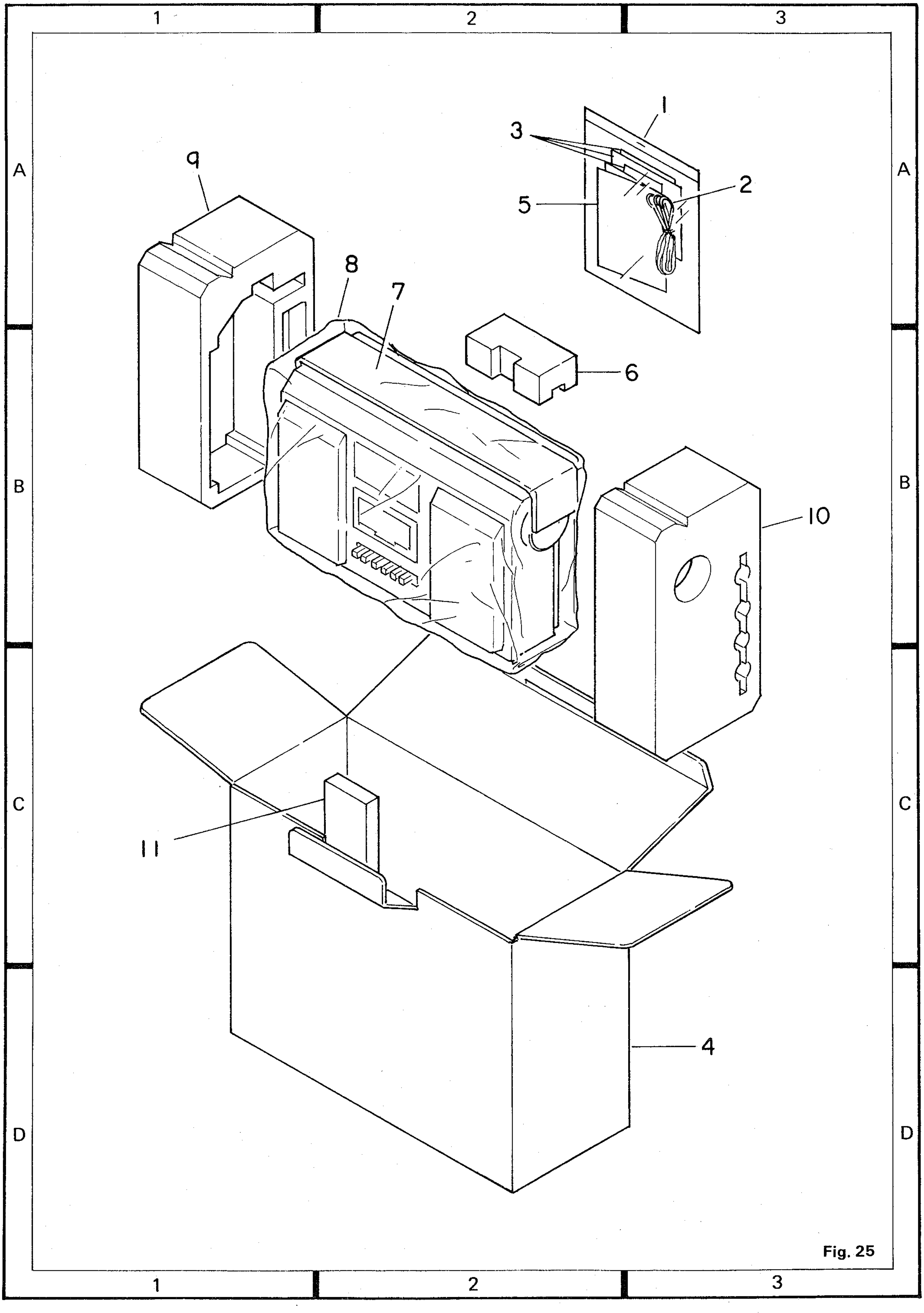
Fig. 23

12. PACKING METHOD


1
2
3
1
2
3
A
B
C
D
A
B
C
D
1
2
3
4
5
6
7
8
9
10
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1
2
3

Fig. 25

13. PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56×10¹ 561.................... RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J
47kΩ 47×10³ 473.................... RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J
0.5Ω 0R5 .... RN2H $\boxed{0}\boxed{R}\boxed{5}$ K
1Ω 010....................................... RS1P $\boxed{0}\boxed{1}\boxed{0}$ K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562×10¹.............................. RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Tuner Unit (HWE-123)

MISCELLANEOUS

Part No.	Symbol & Description	
TA7303P-C	IC1	
KB4409	IC2	
2SC1674-L	Q1, Q2	
2SC1675-L	Q3, Q4	
2SC945-P	Q5, Q7	
2SA733-P	Q6	
2SC460-B	Q8 – Q11	
1S2790	D1	
1S1555 or 1S2076	D2, D3, D6	
VACANT	D4, D7	
1S188FM-1	D5	
CTF-010	L1	Ferri-Inductor, 2.2 μH
HTB-129 or HTB-131	L2	Bar Antenna Assy
CTF-016	L3	Ferri-Inductor, 15 μH
CTC-060	T1	Coil
CTC-061	T2	Coil
HTC-134	T3	Coil
CTC-028 or CTC-040	T4	IF Transformer
CTC-080	T5	Coil
HTE-102 or HTE-103	T6	IF Transformer
HTE-117	T7	IF Transformer
CTB-031 or CTB-037	T8	IF Transformer
CTF-038 or CTF-040	CF1	Ceramic Filter
CCL-035 or CCL-037	VC1 – VC5, TC1, TC4, TC5	Variable Condenser
HCK-102	TC2, TC3	Trimmer
CCP-053 or CCP-055	VR1	Semi-fixed, 5 kΩ(B)
VACANT	VR2	
HCP-106	VR3	Semi-fixed, 50 kΩ(B)
HSD-106	S1	Switch

RESISTORS

Part No.	Symbol & Description
RD1/4PM□□□J	R1 – R4, R6, R9 – R13, R15 – R17, R19, R22, R24, R27 – R52, R66
RD1/4VM□□□J	R5, R14, R18, R62, R63, R67
RD1/4VS□□□J	R20, R26
VACANT	R7, R8, R21, R23, R25, R53 – R61 R64, R65

CAPACITORS

Part No.	Symbol & Description
CCDSH180J50	C1
CCDCH050D50	C2
CKDYF103Z25	C3, C8, C18 – C21, C24, C41, C46, C47, C55
CCDSH200J50	C4
CCDCH030C50	C5
CCDCH100F50	C6, C26
CCDSL101K50	C7, C44, C53
CEA010P50	C9, C27, C54
CCDSH020C50	C10
VACANT	C11
CCDTH180J50	C12
CCDCH010C50	C13
CCDRH100F50	C14
CCDSH100F50	C15

Part No.	Symbol & Description
CCDSH330J50	C16
CKDYF103M50	C17, C22, C43, C48, C51, C56
CKDYF403Z25	C23, C42
CEA2R2P50	C25
CKDYB222K50	C28
CCDSL470K50	C29
VACANT	C30
CEA470P10	C31, C45, C50, C52, C64
CQMA473K50	C32
CSYAR22M16	C33, C35
CSYAR47M16	C34
CQSH511J50	C36
CQMA223K50	C37, C38
CSYAR10M16	C39, C40
CCDSH040D50	C49
CEA100P16	C57
CQMA273K50	C58
VACANT	C59 — C62
CCDSH220J50	C63

Amp Unit (HWK-176)

MISCELLANEOUS

Part No.	Symbol & Description	
M51521L	IC1	
AN7311	IC2	
AN7146M	IC3	
μPC592H2-E	IC4	
2SC945-P	Q1, Q2, Q15, Q17	
2SC945	Q3 — Q7, Q9, Q12, Q13, Q18 — Q20	
2SC1317-R	Q8	
2SC2209	Q10	
2SA733	Q11, Q14, Q21	
2SC2320L-F	Q16	
1S1555 or 1S2076	D1 — D6, D8 — D15, D19, D20, D22 — D26, D34 — D36	
1N34A or 1S188FM-1	D7	
SEL-104RC	D16	
RD8.2EB	D17	
RD10EB	D18	
RD6.8EB	D21	
GL-9PR2	D27, D30, D31, D33	
GL-9NG2	D28, D32	
SLR-30UR	D29	
HTF-112	L1, L2	Coil
HTH-105	L3, L4	Coil, 4.7 mH
HTX-115	OSC	Oscillator Unit
HKN-115	J1	Jack Unit
HCS-121	VR1	Volume, 20 kΩ(B)
HCS-104	VR2, VR3	Volume, 50 kΩ(A)
HCS-123	VR4	Volume, 20 kΩ(K)
HCS-122	VR5	Volume, 50 kΩ(W)
HSH-106	S1	Switch

Part No.	Symbol & Description	
HSH-110	S2	Switch
HSK-112	S3	Switch
HSK-106	S4	Switch
HSK-115	S5	Switch

RESISTORS

Part No.	Symbol & Description
RD1/4PM□□□J	R1 — R5, R7 — R28, R31 — R42, R44, R46 — R62, R64, R68, R70 — R77, R79 — R94, R101 — R112, R114 — R128, R151 — R154, R156 — R172, R175 — R179, R201 — R212, R214 — R228, R251 — R254, R256 — R272, R275 — R279
RN2P□□□K	R29
RD1/4PS□□□J	R30, R63, R66, R78, R173, R273
RD1/4VM□□□J	R45, R65, R67
RD1/2PS□□□J	R174, R274
VACANT	R6, R43, R69, R95 — R100, R113, R129 — R150, R155, R180 — R200, R213, R229 — R250, R255

CAPACITORS

Part No.	Symbol & Description
CEA101P16	C1, C7
CEA220P10	C2, C36, C47, C143, C243
CEA471M16L	C3, C6
VACANT	C4, C5
CEA470P10	C8, C18, C31, C40, C106, C114 C146, C206, C214, C246
CEA470P16	C9, C34, C46
CEA100P16L	C10
CEA100P16	C11, C27, C33, C38, C39, C48, C49, C107, C207
CEA470P10L	C12
CEA4R7P35	C13, C35, C54, C141, C241
CSZAR22M35	C14, C30, C102, C202
CEA010P50	C15, C43, C45, C131, C133, C231, C233
CEA101P10	C16, C21, C26, C29
CKDYB222K50	C17, C23, C142, C242
CEA221P16	C19
CKDYB331K50	C20, C101, C111, C201, C211
CKDYB471K50	C22
CQMA273K50	C24
CKDYB221K50	C25, C44, C105, C145, C205, C245
CCPSL100J50	C28
CEA331P10	C32, C37
VACANT	C41
CKDYB472K50	C42, C103, C203

PARTS LIST

Part No.	Symbol & Description
CQMA103M50	C50
CEA2R2PM25NP	C51
CEA101P25L	C52
VACANT	C53
CKDYB151K50	C55
VACANT	C56 — C100
CEA2R2P50	C104, C116, C204, C216
CQMA473K50	C108, C150, C208, C250
CQMA153M50	C109, C209
CEAR47P50	C110, C210
CSZAR15M35	C112, C212
CKPYB221K50	C113, C149, C213, C249
CCPSL101J50	C115, C215
VACANT	C117 — C127
CQMA563M50	C128, C228
CKDYB561K50	C129, C229
VACANT	C130
CQMA333K50	C132, C232
CKPYX222M50	C134, C234
CQMA183M50	C135, C235
CQMA683M50	C136, C236
CSZAR10M35	C137, C140, C151, C237, C240, C251
CSZAR33M35	C138, C238
CKDYB182K50	C139, C239
CKPYB271K50	C144, C244
CQMA224M50	C147, C247
CEA102P10	C148, C248
CKDYB101K50	C152, C252
VACANT	C153 — C200, C217 — C227, C230

Sensing Unit

Part No.	Symbol & Description	
2SD468-C	Q501	
SIB01-02 or 1S1886	D501, D502	
1S1555 or 1S2076	D503 — D508	
HSN-115	S1	Switch
HSN-101	S2	Switch
HSN-106	S3	Switch
HSN-116	S4	Switch
RN1P□□□K	R501	
RD1/4PS□□□J	R502	
RD1/4VS□□□J	R503	
CEA471P16	C501	

LED Unit (HWX-212)

Part No.	Symbol & Description
SEL-104RC	D1
GL-9NG2	D2

Power Supply Unit

Part No.	Symbol & Description	
1S1886 or SIB01-02	D1 — D4	
⚠ CKP-025	J1	AC/DC Socket
RD1/2PS□□□J	R1	
CKDYF223Z25	C1 — C4	
CEA222P25	C5	

Miscellaneous Parts List

Note;
For "ECM1 and ECM2" employ parts combination of either "HPM-110 and HPM-111 or "HPM-112 and HPM-113."

Part No.	Symbol & Description	
HCH-115	C401, C402	
HPM-110 or HPM-112	ECM1	Microphone Unit
HPM-111 or HPM-113	ECM2	Microphone Unit
⚠ HTT-135	T	Power Transformer
HPW-106	SP1, SP2	Speaker
HPW-105	SP3, SP4	Speaker
HSL-101	S1	Switch
HSG-126	S2	Switch
HXM-114	M	Motor
HXP-102	SO	Solenoid
HPB-107	HD1	Head
CPB-038	HD2	Head

Cabinet

Key No.	Part No.	Description
1.	HNM-214	Cover
2.	BNC30P100FMC	Screw
3.		Holder
4.	HNS-342	Case
5.	HBA-130	Screw
6.	HDX-104 or HDX-106	Antenna
7.	HNC-319	Terminal
8.	PMZ30P080FBK	Screw
9.	HBL-117	Terminal
10.	K16-678	Lug
11.	BMZ30P120FMC	Screw
12.	HNM-166	Cushion
13.	HNS-206	Cover
14.	HNC-320	Terminal
15.	HBH-204	Terminal
16.	HNC-316	Terminal
17.	HBH-203	Terminal
18.	HPW-106	Speaker
19.	BNM30P100FMC	Screw

Key No.	Part No.	Description
20.	HPT-105	Speaker
21.	BNC30P080FMC	Screw
22.	HAC-142	Knob
23.		Clamper
24.	VACNAT	
25.	HAA-110	Knob Unit
26.		Case Assy
27.	HXA-593	Grille Unit
28.	HXA-579	Door Unit
29.	VACANT	
30.	HAA-132	Knob
31.	HAC-158	Knob
32.	HAA-131	Knob
33.	HAC-135	Knob
34.	HAC-134	Knob
35.	HAC-133	Knob
36.	HNM-213	Cover
37.	HAC-163	Knob
38.	BMZ26P050FMC	Screw
39.	CBL-172	Spring
40.		Cassette Mechanism Assy
41.		Lever
42.		Spring

Chassis

Note;

For "No. 50 and No. 63 employ parts combination of either "HPM-111 and HPM-110" or "HPM-113 and HPM-112".

Key No.	Part No.	Description
1.	HWK-176	Amp Unit
2.	SEL104RC	LED
3.		P.W. Borad
4.		P.W. Borad
5.	GL-9PR2	LED
6.	GL-9NG2	LED
7.	SLA-30UR	LED
8.	HKN-115	Jack Unit
9.		Heat Sink
10.	AN7146M	IC
11.	BMZ30P120FMC	Screw
12.	HSH-106	Switch
13.	HSH-110	Switch
14.	VACANT	
15.	HDE-134	Connector
16.	HCS-121	Volume, 20 kΩ(B)
17.	CBN-003	Nut
18.	CBE-012	Washer
19, 20.	VACANT	
21.	HSK-112	Switch
22.	HSK-106	Switch
23.	HCS-104	Switch
24.	HSK-115	Switch
25.		P.W. Board
26.		P.W. Board
27.	HCS-122	Volume, 50 kΩ(W)
28.	HCS-123	Volume, 20 kΩ(K)
29.	BNC30P120FMC	Screw
30.	BNC30P100FMC	Screw
31.	BMZ26P040FMC	Screw
32.	HNM-212	Cover
33.	HAC-131	Knob
34.	HWE-123	Tuner Unit
35, 36.	VACANT	
37.	CCL-035 or CCL-037	Variable Condenser
38.	HSD-106	Switch
39.	HTB-129 or HTB-131	Antenna Unit
40.	VACANT	
41.		Ring
42.	BMZ26P060FMC	Screw
43.	WC26FMC	Washer
44.		Pulley
45.	HXA-461	Handle Unit
46.	CMZ40H080FMC	Screw
47.	HNR-123	Handle
48.		Cover
49.		Microphone House
50.	HPM-111 or HPM-113	Microphone Unit
51.		Holder
52.	CMZ30P100FBK	Screw
53.		Cover
54.	HBF-146	Washer
55.	HNV-238	Holder (R)
56.	WW80FBK	Washer
57.	HNC-323	Washer
58.	WC40FMC	Washer
59.	BMZ30P080FMC	Screw
60.	HNS-209	Grip
61.	HNV-237	Holder (L)
62.		Microphone House
63.	HPM-110 or HPM-112	Microphone Unit
64.	HKN-112	Jack Unit
65.	CNV-800	Pulley
66.	YE30FMC	Waher
67.		Shaft
68.		Chassis
69.		P.W. Borad
⚠ 70.	CKP-025	AC/DC Socket
71.	BNM30P100FMC	Screw
⚠ 72.	HTT-135	Power Transformer
73.	BMZ30P060FMC	Screw

PARTS LIST

Key No.	Part No.	Description
74.		Cover
75.	CBH-438	Spring
76.		P.W. Board
77.		Pointer
78.		Holder
79.		Bracket
80.		Panel

Cassette Mechanism (Top)

Key No.	Part No.	Description
1.	YE20FUC	Washer
2.	CXB-661	Roller Unit
3.	CBH-491	Spring
4.		Arm
5.	CBH-482	Spring
6.	CBF-111	Washer
7.	CBH-492	Spring
8.	CNE-137	Arm
9.	YE30FUC	Washer
10.	CNE-131	Lever
11.		Lever
12.	CNE-139	Arm
13.	CBH-479	Spring
14.	BMZ30P060FMC	Screw
15.	HAW-118	Counter
16.	HAW-119	Counter
17.	HNT-118	Belt
18.	HNT-117	Belt
19.	PMA26P040FMC	Screw
20.		Bracket
21.	BMZ26P060FMC	Screw
22.	HSG-126	Switch
23.	HXM-114	Motor
24.	HXA-494	Pulley Unit
25.	ZMK26M030FMC	Screw
26.		Bracket
27.	CNV-840	Cushion
28.		Roller
29.	HBA-126	Screw
30.	CBH-481	Spring
31	CLA-752	Roller
32.	YE12FUC	Washer
33.	CBH-488	Spring
34.		Lever
35.	HBF-115	Washer
36.	HXA-489	Reel Unit
37.	HBF-145	Washer
38.		Holder
39.	PMA26P050FMC	Screw
40.	CBH-479	Spring
41.		Stopper
42.	YE15FUC	Washer
43.		Lever
44.		Lever
45.		Head Plate Unit
46.		Lever Unit
47.		Arm Unit
48.	CBH-505	Spring
49.		Arm
50.		Collar
51.		Arm
52.		Collar
53.	CBH-497	Spring
54.		Chassis Unit
55.		Flame Unit
56.	HSL-101	Switch
57.	BMZ20P080FMC	Screw
58.		Arm
59.		Lever
60.	CBH-494	Spring
61.	CBH-476	Spring
62.	HXA-439	REC Assy
63.	CBH-480	Spring
64.	CBH-477	Spring
65.		Base
66.	HPB-107	Head
67.	BMZ20P100FMC	Screw
68.	CBH-475	Spring
69.	CPB-038	Head

Cassette Mechanism (Bottom)

Key No.	Part No.	Description
1.	HXA-495	TP Unit
2.	CBH-485	Spring
3.		Lever Unit
4.	HNV-265	Lever
5.	YE25FUC	Washer
6.	YE20FUC	Washer
7.	HBH-121	Spring
8.	CBF-103	Washer
9.	HXA-492	Base Unit
10.	PMA26P050FMC	Screw
11.	CNV-843	Holder
12.	HBF-145	Washer
13.	HXP-102	Solenoid
14.	BMZ26P080FMC	Screw
15.	CNT-068	Belt
16.	HNR-137	Flywheel
17.	HBF-148	Washer
18.	CNV-833	Screw
19.	BMZ26P060FMC	Screw
20.		Plate Unit

Key No.	Part No.	Description
21.	HXA-488	Reel Unit
22.	YE40FUC	Washer
23.	CBH-493	Spring
24.	CNV-879	Lever
25.	HXA-491	FR Unit
26.	CBH-486	Spring
27.		Washer
28.	CBE-088	Washer
29.	HNT-121	Belt
30.	YE12FUC	Washer
31.		Arm
32.	CBF-111	Washer
33.	PMA26P040FMC	Screw
34.	HNR-138	Flywheel
35.		Lever
36.	CBH-481	Spring
37.		P.W. Board
38.	HSN-116	Switch
39.	HSN-106	Switch
40.	HSN-101	Switch
41.	HSN-115	Switch
42.	HSN-114	Plug
43.		Bracket
44.		Lever Assy
45.	CBH-498	Spring
46.	CNV-881	Plate
47.		Holder Unit
48.	CBH-495	Spring
49.	CBH-476	Spring
50.	CBH-494	Spring
51.		Holder
52.	CBH-487	Spring
53.	CBH-210	Spring
54.	CBH-497	Spring
55.		Chassis Unit
56.		Screw

Packing Method

Key No.	Part No.	Description
1.		Polyethylene Bag
⚠ 2.	CDG-029	AC Cord
3.		Card
4.	HHA-417	Carton
5.	HRB-147	Owner's Manual
6.	HHA-435	Styrofoam
7.		Cover
8.		Cover
9.	HHA-376	Styrofoam
10.	HHA-377	Styrofoam
11.	HHA-424	Styrofoam